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THE UNITED SERVICE

A MONTHLY REVIEW OF MILITARY AND NAVAL AFFAIRS

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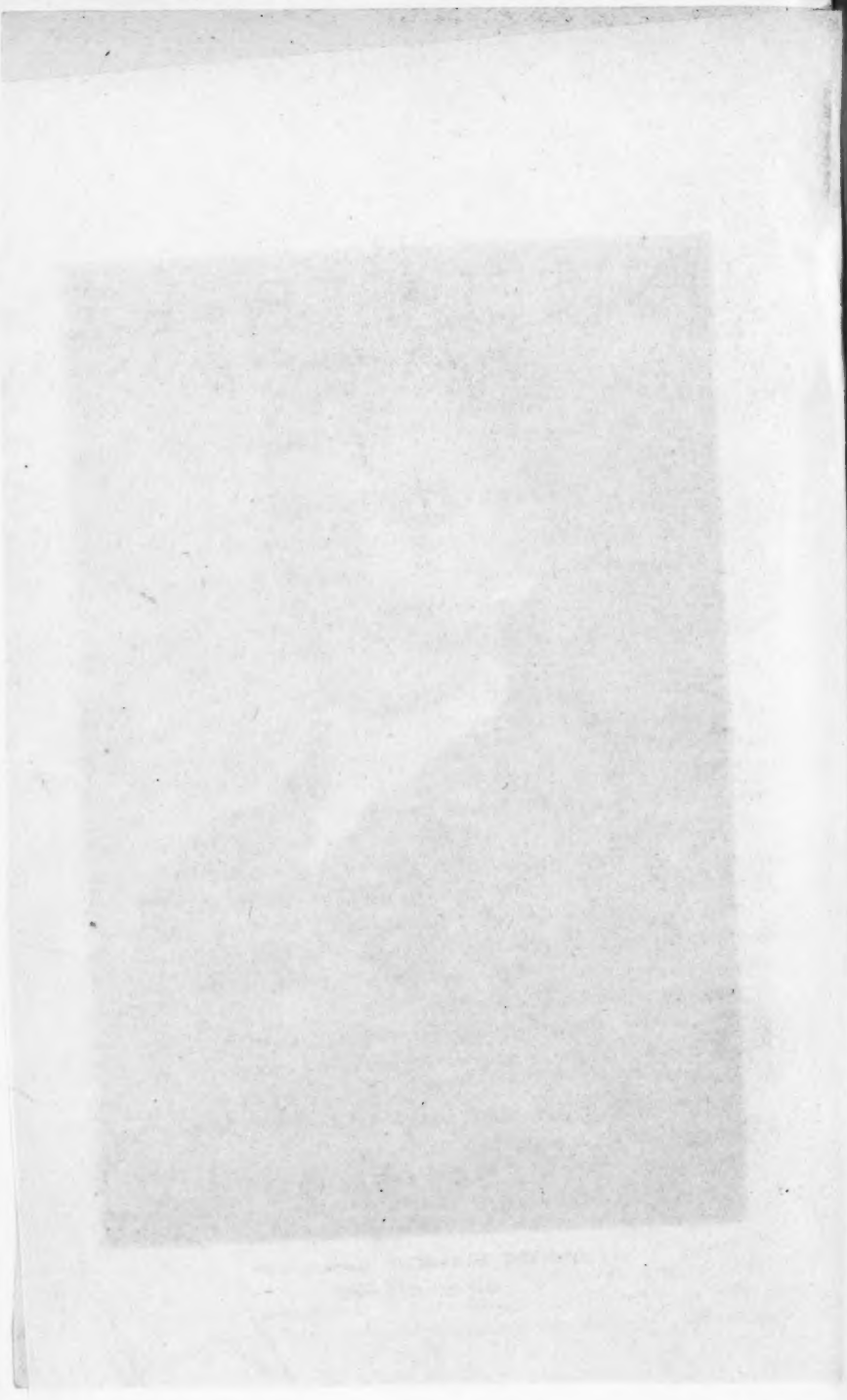

THE
UNITED SERVICE
EDITED BY L. R. HAMERSLY, Jr.
MAY, 1905.

*INFANTRY CYCLISTS.**

BY STAFF COLONEL G. IMMENHAUSER.

(Condensed Translation by STAFF CAPTAIN A. FONJALLAZ.)

REVUE MILITAIRE SUISSE.

Translated for the General Staff by Capt. Cecil Stewart, 4th U. S. Cavalry, March, 1905.

The officer charged for a number of years with the instruction of military cyclists in our army has just published a most interesting and instructive pamphlet. It is the military history of our bicyclists and a résumé of the tests followed out from 1896 to 1903. We are thus enlightened as to the phases through which our organization and cyclist instruction have passed the road that remains to be traveled.

In the introduction, the author, after having inquired into the influence exercised by mounted infantry in a campaign like that of South Africa, proves that never before has any army but the English army decided to organize permanent troops of this kind, and that with reason. Independently of the question of expense, we have adhered to preserving for the infantryman on the one hand, and for the cavalry on the other, their peculiar qualities. The latter arm, in spite of its incontestible virtues in campaign, does not see its strength increased.

The reason is either expense, lack of available horses, the exigencies even of our army organization.

The logical consequence of this state of affairs impels seeking, aside from the horse, for means of transportation less costly though still rapid, and available in war. The bicycle answers these demands,

*This article is a résumé of a study by Staff Lieut.-Colonel G. Immenhauser, "Radfahrende Infanterie von Oberstleutnant G. Immenhauser," published as a supplement by the *Allgemeine Schweizerischen Militärzeitung*, 1904.

and organization in modern armies of combatant cyclists has in the last few years been decidedly extended. Lieutenant-Colonel Immenhauser considers that the time has come to examine the *question of the organiation of infantry cyclist units* in our country. It is not alone upon an extended theater of war like that of South Africa that greater mobility will have an important bearing. Our small army may have to hold back an adversary on one or several frontiers of our country. By the side of the mountain troops, the Alpines, charged with a special mission, we must have an infantry capable of following up the cavalry and of covering distances double or fourfold those that ordinary infantry succeed in covering. These troops will compensate for the numerical inferiority of our cavalry and will sensibly reduce the difficulties of conducting operations.

The author urges the appellation "Radfahrende Infanterie" which we believe best translated by "Infantry cyclists." He means thereby to point out that he wants no special troops, but a kind of infantry equivalent to ordinary infantry. These cyclist infantrymen should know how to shoot and march like the foot soldier. Moreover, they will be drilled and trained thoroughly in bicycling and technical knowledge of the bicycle. And we think the author is perfectly correct when he says, *"to-day cyclists, to-morrow pedestrians, but good infantry always, there is the goal."*

After this general discussion, the author gives a summary of the cyclist organizations of the bordering States.

Germany has provided experimentally and temporarily some combatant cyclist companies, but a definite organization is not yet decided upon. It is in field service that the cyclists find extended duty. They can maintain communication between several separate columns and connect the cavalry with the columns consisting of all arms in the rear. They utilize them also where the cavalry is wanting or should be spared. Finally, pioneers often perform their duty using the bicycle.

Austria-Hungary has on her eastern frontier no routes favorable for bicycling. It is also a well known fact that this country has been passing through a parliamentary crisis which for several years already prevents her from proceeding with changes in her military organization.

Italy equips twelve companies of bersagliere cyclists, a company to each regiment of bersagliere, that reinforce the twelve cavalry brigades.

France intends to form entire battalions of cyclists. *France Militaire* of November 11, 1903, announced that the board on expenses granting the necessary sums laid down the condition "that this credit

shall be employed exclusively for provisional organization of a first cyclist battalion."

The same board had in view transformation of chasseur battalions and cited the cases under which their use was justified, for example: To help the cavalry in its service of exploration before battle; to attack the enemy's flanks or stop troops in march during battle; to carry out attempts upon communications in the enemy's rear; to occupy on the retreat positions selected in advance, etc.

DEVELOPMENT OF BICYCLING IN SWITZERLAND.

In the special study of the development of bicycling in *Switzerland* we note that since 1891, the year in which the project was entered upon with vigor, changes have not been great. Article 3 of said project contemplated formation of subdivisions of cyclists, but the federal Assembly intended to maintain these troops exclusively for courier and orderly service. It added that for any other organization, working out of a law would be necessary. This law never came to light; they satisfied themselves with annually increasing the number of cyclists, which will perhaps in a few years allow of attaching one or two to each battalion.

They have thus given up strengthening our cavalry through cyclists in spite of the evident disproportion in strength existing between infantry and cavalry.

It must also be stated that we make but small use of bicycles and that we are greatly outstripped by our neighbors. Thus, abroad, student officers have the benefit of bicycle instruction, and it is held that an officer, lacking a horse or other means of transport, should be able to use the bicycle. With us, not only in bicycling not taught in any school, but often use of a wheel by an officer is not even tolerated.

Nowhere is it dreamed of taxing owners of heavy vehicles who make use of our roads, whilst the cyclist, military or not, is held to a tax varying from 2 to 5 per cent. of the value of his machine.

Yet in Italy we see each gendarme receive a machine; elsewhere it is the postmen and despatch bearers; our custom house employees, on the contrary, may not even during their time off duty make use of a wheel.

It is still in the army that technical questions often remain in the background. By dint of wanting to simplify and bring about everything for the rifleman, the dragoon or the artilleryman, we remain stationary. It is quite on this account that our cyclist organization has not progressed for just twelve years. Luckily this fact has had no influence upon the development of training and upon experiments

tending to seek out all that has a bearing upon bicycling. The military department has sustained the organizers along this path and the regulations contain since 1901 a chapter on special enterprises and on combat for military cyclists.

Instructors as well as line officers who for ten years have frequently been called together in the bicycle courses are to-day perfectly oriented and their opinions are in accord as to all that bears upon military bicycling and as to the model of machine to adopt. All agree in recognizing that but one model ought to be introduced, with interchangeable parts and uniform articles for refitting.

We are thus quite naturally led to speak of the machines used in our service and of the most available war model.

The law directs (article 6) that the cyclist must furnish his own machine, but the Confederation aids the soldier by enabling him to buy at reduced price a suitable machine. Two decisions of the federal Council (December 8, 1894, and March 23, 1895), grant the soldier purchasing the standard bicycle (*Normalrad*) a subsidy of 50 francs, say 14½ per cent. of the purchase price, fixed at 350 francs. At the end of five years, he can get a second machine on the same conditions, the first remaining his property.

These federal subsidies, that up to this day would have reached 50,000 francs, were not made use of. Some years after the board had fixed upon the standard model, pneumatic tires prevailed over single tubes, and it was necessary to submit to postponement to decide upon the choice of another model. It was also necessary to wait until the condition of the market had again become sensibly quieted, differences in prices between the makes being very great and the appearance of rigid and folding models having impressed on the whole problem a new character.

An annual credit of 2,500 francs was granted for purchase of school bicycles. A soldier whose machine was being repaired, temporarily received another and training did not suffer thereby.

They were able also to test the Belgian, German, French, Italian and Austrian army models and supply some squads with the different folding models.

During the period of transition, the commandant of the course of instruction had either to accept the greater part of the machines submitted or disband cyclists furnishing defective machines; the latter alternative could not, however, be applied, although among the machines thought well of by the board many were not in a state to stand service, whence repairs in great number and expenses to burden the course. The difficulties of replacement were enormous as to cer-

tain parts and pneumatic tires had to be bought one by one according to model.

The experiments with folding machines, pursued in 1902 and 1903 during nine weeks, ended in negative conclusions. The folding bicycle has two advantages: the *small diameter* of the wheel with the *small development* permit of remaining on the machine at gradients, and the *snap-hinged frame* that permits folding the machine and carrying it on the back during fighting. But these advantages are but ostensible. The rigid frame system can also admit of reduced development, and the machine carried on the man's back does not help marching much. Lying down, fire is impossible; standing, it is difficult. It is better to leave the bicycle on the ground, it less easily betrays the presence of the cyclist. The steps to be taken in folding up the bicycle in the several positions demand time; finally, the folding machine weighs two kilos more than machines with rigid frame, and for its delivery we are made dependent upon foreign factories.

The standard 1904 model, that answers all demands, is enameled black, with rigid frame, wheels of 65 cm. diameter, development of about 5 m. 50, loose wheel because of the gradients of our mountain roads. It costs, with excellent pneumatic tires, acetylene lamp and bell, at the most 240 francs, and, except the tires, can be manufactured in our country.

The standard bicycle might form part of the corps property (allowing for a change in the law) or be turned over to the man. This last method of procedure is the most advantageous as it allows of the soldier training when not on service. Furthermore, the machine may be delivered gratuitously or the cavalry system as to its horses adhered to, for generally a man will take better care of the article he pays for in part.

The statute of July 5, 1904, adopts this last principle. It does not require the soldier to buy a standard bicycle, but it fixes certain uniform dimensions for all machines employed on duty (diameter of wheels, rims, frames, development). This arrangement will help perhaps to realize the idea of a single machine. The standard bicycles besides are delivered without pneumatic tires at half total cost price, an allowance of 50 centimes per day of duty helping in settlement.

Pneumatic tires, lamps and bells will belong in future to the cyclist corps property and will no longer be provided by the man, but be turned over on entering the service and taken up on disbandment. The statute (identical with that concerning horses for the cavalry) further regulates replacing machines unsuitable for the ser-

vice, and other points of law between the Confederation and the cyclists.

As may have been observed, this statute certainly marks progress. Everything is therein simplified and will allow of making a saving when the system shall have been in operation for some years. The future will tell us if the cyclist law is the best or whether it is advisable to furnish the man his machine as the rifle to the infantryman.

PERFORMANCES OF INFANTRY CYCLISTS.

In this chapter we find a résumé of the performances or marches of our cyclists since 1896.

In 36 days' running (not consecutive), the cyclists covered about 3,900 kilometers with most often crossing of a pass obliging long distances on foot; in all, 15,500 meters of climbing, not including differences in elevation in the plains. We have thus obtained a daily performances of 108 km. 5, with 430 m. ascent. All the trips were combined with exercises in patrolling or establishing outposts or in chance encounters, which sensibly increases the daily work. The units that took part in these marches comprised from 50 to 220 men, averaging 103.

The longest runs comprised:

1 day 187 km., 750 m. ascent in 17¼ h., strength 50 men.

2 days 307 km., 580 m. ascent in 38¾ h., strength 129 men.

3 days 323 km., 1,700 m. ascent in 65½ h., strength 220 men.

4 days 320 km., 2,400 m. ascent in 87 h., strength 135 men, with 7 practices at the target.

Naturally, rain has not kept the cyclists in barracks. The author notes that often they left during a downpour, and that in the majority of runs rain fell during half the trip. Night marches also took place under the same conditions.

As to the sick, the decrease in strength, including all marching days, varied from 0 to 3 per cent.

The diminutions consequent upon damaged machines and that obliged the men to continue on foot or by rail, were considerable. In 1896 (epoch of transition from single tube to pneumatic tires), 21 per cent. in losses were counted; later, improvement was noticeable. While in some marches, even of two days, no important repairs were necessary, in others the losses attained 6 per cent. It is still quite too great. The reason is the power left the man to make use of his own machine. The day that the standard bicycle shall be decreed regulation, these losses will disappear, experience having demonstrated that only this machine is capable of withstanding the hard-

ships of a campaign. Short stops and punctures by unlucky nails will be inevitable, but at least the soldier will leave the ranks but for a short time. In all other cases, spare parts being uniform, repairs will be immediate.

Lieutenant-Colonel Immenhauser is then in the right in affirming that only the *standard bicycle* and *well-regulated duty will allow of avoiding losses on the march, excepting of course in case of circumstances beyond the cyclist's control.*

As in all arms, *close watch over* interior economy is necessary. Cyclists cannot be permitted to take the road if their machines are not in perfect order. This condition moreover exists in regard to all troops. A company equipped with standard bicycles and whose interior economy leaves nothing to be desired is equal to *any other unit and ready to take the field.*

Marches have demonstrated that a cyclist company was able daily, on the high plateau, as in the Jura, to cover from 80 to 120 km. without its power of endurance being tried. Conditions being favorable, it covers from 12 to 15 km. an hour; when otherwise, from 8 to 10. In climbing for some length of time, the cyclists push their machines and advance as rapidly as the infantry.

It was necessary, in order to be supported by numerous exact facts, still to carry out other experiments in broken regions.

In 1902, one section, after having run 54 km. while combining the march with battle exercises, continued on from Emme near Schangnau by way of Rotmoos to Schwarznegg, say 14 km. and 330 m. ascent in 3½ hours.

In the middle of October, 1903, 3 officers and 25 soldiers set out during a pouring rain at 2:45 A. M. from Nyon, reached St. Cergues at 6:15 (14 km. and 690 m. ascent). At 7 they left St. Cergues to reach Yverdon by passing through Reisse, Bassine, Pré de Bière, Brassus and Pont. But at Bassine they lost their way in the fog and rain and arrived by way of Arzière at Coppetes, 3 km. to the east of Fort Rousses. From there the party skirted the slopes of Noirmont to Brassus (arrived at 5:30 P. M.) and reached Yverdon at 10:30 in the evening, after having been 19¾ hours en route; they had covered 70 km. on their wheels and at least 42 km. on foot, more than 33 of them over the soaked soil of forest and pasture.

At the end of October, 1903, 6 officers and 78 soldiers set out at 7:45 A. M. from Pont and went by way of Places, Pré de l'Haut, Racine (1511), Pré de Bière, so as to reach Marchairuz at 1:15 P M.; from there by Bière, La Sarraz, Bavois to Yverdon, where they arrived at 8:30. This trip was made under very bad meteorological

conditions. Rain mixed with snow fell almost continually on the Places-Marchairuz run. The mountain roads to Mount Tendre were muddy, broken up by carts and overflowed, and it was necessary to march the greater part of the time across fields. The passage from Pont to Marchairuz on foot (20 km., 600 ascent, 4 km. only of them on the road) required 5½ hours, that from Marchairuz to Yverdon by Bière (53 km.), likewise 5½ hours over very bad roads and in part by night with the aid of lamps.

Taking into account the unfavorable temperature, it may be supposed that the infantry would not have been able to make such a march more rapidly than the cyclists, equipped and compelled to push their machines. Conclusion: *with the exception of marches to be made in the upper mountains, cyclists compelled to push their machines over roads or across fields perform marches equal to those of infantry equipped for war.*

INFLUENCE OF CYCLING ON THE PROBABILITY OF HITS.

In 1902, it was established that cycling had no influence upon the probability of hits. The bicyclist school of 1902 fired according to a programme agreed upon (fire at will) on the Ostermündigen ground, close by the Berne barracks. Later on 135 men of a supplementary course set out (August 15, 4 A. M.) from Berne and arrived by way of Chiètres at Fleurier (9:45 P. M.). The course covered 116 km. with an ascent of 1,240 m.; along the route field exercises had been carried out at four different places.

August 16th the company left Fleurier at 6:15 in the morning without having breakfasted and by way of Ste-Croix arrived at 8:30 at Yverdon. After breakfast, it executed from 9:30 the same firing programme as the Berne school. The march on an empty stomach had comprised 32 km. and 405 m. in difference of altitude, besides a perilous descent from Ste-Croix to Vuitteboeuf.

Comparative results for 100 shots between the two firings were as follows:

			Bicyclist school		Supplementary course		Difference between	
Range	Target	Position	Points	Hits	Points	Hits	points	& hits
300	A	Prone, no rest..	225	90.5	200	81.7	−25	−8.3
300	A	Kneeling	194	83.7	193	83	−1	−0.7
400	A	Prone, no rest..	156	72.5	148	69	−8	−3.5
300	A	Offhand	121	61.7	143	67	+22	+5.3
500	D	Kneeling, with rest	138	76.7	125	69	−13	−7.7
300	D	Prone, no rest..	154	86.2	158	87	+4	+0.8

The mean result of the six exercises fired with the short-rifle gave for 100 shots 78½ hits and 165 points for the school and 76 hits and 161 points for the supplementary course.

The 148 km. march with 1,643 m. ascent that had immediately preceded the firing and that required 29½ hours, decreased the mean result but 2½ hits and 4 points.

METHOD OF FIGHTING.

Cyclists should follow the principle of our cavalry drill regulations as to fire action, these principles naturally being based on great mobility. The fight will most often have for its end the gaining of time, where, for example, holding a defile until arrival of the main body. It might again assume the character of a surprise by fire or that of an ambuscade.

A company of 200 cyclists marching in column of twos (400 to 500 m. deep) attacked suddenly takes one minute to put all its rifles in action at the head of the column and half a minute to deploy on the flank. During these deployments a guard designated in advance protects without further orders the machines, and watches exposed parts of the terrain.

Several factors—terrain, situation, subsequent intentions—determine the place for the machines, whether under cover or in the firing line.

It will not be a question of forming extended lines of skirmishers, but rather of coming up unexpectedly, of acting by surprise and quickly, next to disappear and begin again elsewhere. The sections should be informed as to the general object of the combat and should know the general direction; it is their affair as to extricating themselves, seeking the best route, and formation safest for reaching the point whence fire will be most effective.

Thin lines of skirmishers permit the men to make use of the ground and to keep their machines in near proximity. Sections gaining a new position do so by the most favorable road, also occurrence of intervals more or less great between them must be foreseen.

Double time in advancing by rushes is possible, but can be but exceptional.

The fight will develop without regulation signals. The cyclist chiefs must have grasped the situation in time. They will give consequently clear and precise orders, all the time leaving to the subunits their task and their freedom of action.

It is within this meaning that the instructor should prepare the commanders of units.

Cyclists will often have to fight cavalry or other cyclists, therefore troops animated by a spirit of enterprise. Combat patrols will also play a part and will cover the flanks and rear during action.

Troopers are certainly more free in their movements than cyclists; the latter can only lay claim to helping the cavalry. By uniting the two forces in case of need the final result is to a great extent assured.

USE OF INFANTRY CYCLISTS IN WAR.

It became necessary to again determine by practical instances the methods of using infantry cyclists. The author takes us back to the recruit school exercises of 1902.

The strong company of 7 officers and 215 soldiers left Berne July 31st at 4:45 A. M. and arrived at 9:15 at the fork of the roads north of Zofingue, where it received the following special orders: Get ahead of a brigade of cavalry marching from Sursee to the Rhine, where patrols of the enemy have arrived. Keep free the bridges between Aarau and Olten, then the Staffelegg and Benkerjoch passes. Lastly, close the bridges over the Rhine from the mouth of the Aar to Augst.

These three tasks were successively solved. At 6 P. M. three sections were on grand guard at Laufenburg, Stein and Rheinfelden, non-commmissioned officers' posts were operating at Coblence (Aar bridge and at Augst. All these posts were connected with each other and with the reserve by a relay service. The troops provided their own supplies in the positions they were guarding and there passed the night.

August 1st, at 4:30 A. M., the company commander received notice that a body of our infantry had arrived at Laufenburg. He withdrew his section from guard and sent it to the reserve at Mumpf. At six o'clock a message by relay informed him that Rheinfelden was attacked. He set out in this direction and reached Rheinfelden at 6:50. The exercise was then interrupted and the company breakfasted.

Next it was conceded that cavalry marching from Porrentruy by Laufon on Bâle had been compelled to withdraw upon Porrentruy, its retreat covered by a cyclist company. A brigade of cavalry charged with its pursuit detaches a company of cyclists to the front to gain for it possession of the defiles. The company was sent and carried out battle exercises with both sides represented at the rocks of the Birse. At 8 P. M. it was assembled at Porrentruy.

August 2d the company, not having eaten, was ready at 5 A. M. It received orders to occupy the frontier passes from Boncourt to

Damvent and to establish there guard detachments. The company commander placed grand guards at Boncourt, Fahy, Damvent, non-commissioned officers' posts at Bure and Grandfontaine and kept his reserve at Porrentruy. Later, having received a report that the enemy was attacking at Damvent and Fahy, the reserve was advanced to Chevenez.

Rain had fallen all night and it was still raining when the company returned to Porrentruy at 8:30.

After breakfast, it left in ordinary formation at 9:50 by Rangiers, Undervilier, Bellelay, Tavannes and Bienne for Berne, where it arrived at 10:20 P. M., accompanied all day by a torrential rain.

August 1st no one remained behind, the 2d, 6 per cent. of the men had to give it up after damage to their machines.

The expedition had lasted 65½ hours; 323 km. with 1,700 m. ascent had been passed over.

Another test of mobilization and marching was executed in 1903 by the non-commissioned officers' school.

September 28th, at 2:30, the school opened. It employed the afternoon and the first hours of the 29th in mobilizing and registering the school matériel and left Berne the same morning at 9 o'clock. In seven hours it covered 73 km. and arrived at 4 P. M. at Yverdon, say 25½ hours after entering on duty. The 50 men of the school were in perfect shape to continue the march.

The results of tests permit Lieutenant-Colonel Immenhauser to assert that a well-organized and instructed corps of cyclists, mobilized at Berne, can reach thirty-six hours after coming into service no matter what frontier opening from Nyon to Coblence. An identical result can be obtained setting out from the assembly towns of Zurich, Zoug or Lucerne for the line of frontier comprised between Coblence and Landquart; likewise for the south front. As is natural, the assembly places of cyclist units should be in the district of their division.

The *tasks* that such units would be asked to solve would be the following:

1. *Efficient support* offered the *frontier inspection* service *during and after mobilization,* a mission which should suffice to prove how indispensable are cyclist units. One can infer the activity of such detachments either in protecting the lines and public works of our territory, or in undertaking raids in hostile country.

2. *Support of the cavalry screen operating on the front.* While this arm clears the front and scouts, the cyclists can occupy and hold defiles or other important points, cover the troopers when rest-

ing, take part in the fight with their fire, cover and collect cavalry retreating, organize stations for collecting reports and transmit messages.

3. *Help protect the flanks* at great distance during battle, and thus leave the cavalry at the immediate disposition of the chief on the battlefield.

4. *Undertake expeditions* on the *flanks* and *rear* of the enemy's communications, especially at night and during fog.

5. *Support the cavalry screen* in parallel pursuit.

6. *Quickly occupy* positions selected in advance and *cover defiles* during retreat.

7. Fulfil *service of security and information* in the first place by night and on the flanks.

It is indeed upon infantry cyclists, organized in units, that all these tasks may devolve.

Time gained by these troops, capable of covering 30 kilometers in two or three hours, allows of numerous enterprises. The bicyclist advances by night without noise; in that he is superior to the trooper. He is just the man for night patrolling between outposts as also for forming advanced posts.

ARMAMENT, DRESS AND EQUIPMENT.

The short rifle, invariably carried by the cyclists, is a good arm; its small magazine without cut-off is very practical. As to kind of fire, the cyclists have adopted that which to us appears most rational and which ought to be introduced in the infantry. There is *but one* kind of fire and *but one* command. Rapidity of fire is at need decreased or increased by order: Slow fire, quick fire, rapid fire.

The service rifle cannot be carried slung over the shoulder by the cyclist. The short rifle has one ballistic disadvantage in respect to the former; at distances beyond 500 meters it is no longer equal in accuracy; so a rifle should be built possessing the desired qualities.

The *dress* should be of articles nearly like those for infantry. A jacket identical with that planned to replace the tunic would be suitable; breeches buttoning below the knee would be alike beneficial for cyclist and foot soldier.

The present forage cap is too heavy and causes headaches on long runs. If, on the other hand, the infantry adopt a lighter headdress, it would be proper to bestow it on the cyclists also, if only to prevent their being distinguished from infantry during firing. The shelter-half cannot replace the hooded cape; the latter must be retained.

The equipment does not call for special modifications. For lack of wagons, the men themselves must carry 180 rounds; 120 in the cartridge pouches and 60 in the valise. Cartridge boxes disappear, the rifle no longer being loaded a cartridge at a time. It is necessary for carrying equipment to dispose of a valise and traveling bag. The valise in use up to this day has proved its worth. It weighs 1½ kg. and its dimensions permit of its holding: underwear, ten clips, one spare ration, one pair of light shoes, maps and service note-book. Packed, it weighs 6 kg. The traveling bag answers for the second pair or breeches, toilet satchel, the second change of clothing and contingently the bread bag. It weighs, without the bread bag, 3 kg. 4 and may be carried on the back or fastened with cape and mess kit behind the saddle. A knapsack would not answer; it would interfere with carrying the rifle.

This equipment permits of cyclits passing in case of need into the infantry ranks. In winter, for example, when the bicycle could not be used, the valise would be emptied and its contents put in the traveling bag. The machines and their valises would be sent for storage to a supply station.

RECRUITING AND INSTRUCTION.

Cyclist recruits should be in good health and not suffer from a tendency to corpulency. Sight should be normal, lungs, as well as heart, healthy. The pedagogic rating enters into consideration at the time of assigning orderlies.

Training for bicyclists is given in a special school for 21 days following after a school for infantry recruits. It is clear that men already in training are necessary in order to obtain any results in this school; in 21 days, a beginner could not go through the programme without injuring his health. These reasons have compelled admittance only of recruits already capable of covering 100 km. a day. This method of recruiting cannot be to the interests of the army. It takes at time from the infantry good non-coms. or introduces in the cyclist corps elements not desirable.

In the preliminary project for military organization, the special school term for bicyclists is increased from 21 to 30 days. Instruction thereby benefits a little, but recruitment could not be modified as long as this special school is not combined with a recruit school in the infantry. As long as training of cyclist and infantryman remains distinct a minimum of 30 days must be reckoned upon for training the cyclist proper. The soldier, outside of the requirements of bicycling, 90 days needing to know the infantry drill, his instruction demands *at least 90 days.*

A single school uniting the present two would be in the interests of training, to the advantage of the men's health. This combination would permit enlisting cyclists still novices and who often are worth more than some racers. The young men could be trained from the beginning of the recruit school aud be given daily lessons admitting of progressive efforts. In this manner, cyclist training would not be crowded into a short period, often to the detriment of the soldier's health. Men accustomed to the wheel have still need of at least 160 hours' instruction, beginners at least 240. These 240 hours would correspond to the special school course of 30 days following the recruit school.

The proposition of Lieutenant Colonel Immenhauser, to lengthen the cyclist recruit school to 90 days, would permit giving up the special courses and introducing some solely for artificer machine repairers.

The duration of the regular and supplementary courses would correspond to those proposed in the preliminary project for the infantry. The number of supplementary courses should be equal to that of the cavalry. It does not seem advisable to establish any difference between the training of infantry cyclists and that of orderlies. It suffices to teach the organization and special drill according to the requirements of each category; likewise for map reading.

In a few words the proposition sums up thus: the cyclist recruit school has the same length as that for cavalry. Bicyclists who had not been trained in a recruit cyclist school would complete the last 30 days of that school. The number of supplementary courses would be equal to that of the cavalry.

ORGANIZATION OF INFANTRY CYCLIST UNITS.

The fighting unit is the company.—Several companies may form a battalion. Assembling the battalion will be exceptional, as companies, as a rule, should remain detached. The battalion could not act as such except in a defensive sector and instructions and orders will emanate from it only in special undertakings. Larger units would deprive cyclists of their true characteristics.

Company personnel and matériel.—The strength of cyclist orderly companies is determined according to need, that of infantry cyclist companies by conditions for maneuvering and for necessary mobility in deployments. Companies ought not to number more than 200 rifles: a less strength is even preferable. For example, we may sup-

pose 3 sections of 53 rifles, 1 captain, 4 lieutenants (one acting as officer in charge of matériel and patrols), 1 first sergeant, 1 man in charge of mess, 1 property non-com. (chief repairer), 6 sergeants, 18 corporals, 1 hospital corps man, 3 repairers, 1 automobile driver, 132 privates. A company of 200 rifles would have 4 sections, say in addition to the other: 1 lieutenant, 2 sergeants, 6 corporals, 1 repairer, 44 privates. One man per section as trumpeter will be enough. One officer and a party of noncommissioned officers and privates should be accustomed to handling explosives. Officers and hospital corps man will be the only ones not carrying a rifle.

Mobility of companies should not be hampered by any transportation; officers should reduce their baggage to the minimum. Supplies —if necessary—can be directed by telegraph to a railway station. It is only a matter, however, of canned goods, the company living on the country they traverse.

Machines or articles to be replaced can be left at a terminus and guarded by supernumeraries or home-guard cyclists.

The *fighting train* of cyclist companies may at most consist of a light auto-truck and a four-wheeled motor-cycle, containing the explosives and tools. The auto-truck would carry the tools and spare parts necessary for repairs, some pioneer implements, the medical supplies, officers' baggage and some dried vegetables. The crippled soldiers would be left with it and contingently ammunition and a few artificers to repair machines.

Battalion personnel and matériel.—The number of companies in the battalion is a matter of indifference, the companies being the units that it makes use of. The battalion commander would have at his immediate disposition: 1 adjutant, 1 aide-de-camp and 1 automobile driver. There would remain to be determined the place for the surgeons, with the battalion staff or the companies. Horses could not be made use of. Leading cyclist battalions is possible if the commanding officer employs a means of transport swifter than the bicycle, that is to say, he must have an automobile or a motor-cycle. The battalion staff automobile would carry the baggage of the officers that are attached to it. The adjutant and aide-de-camp would follow on motor-cycles.

There remains yet to be studied *formation of machine gun cyclist sections.* Machine guns with mounts and equipment, like those of fortress troops, would be carried with the ammunition on an auto-

truck, the men riding bicycles. At the desired time the machine guns would be utilized in the terrain according to the principle in force in the machine gun companies.

EXPENSES.

The author institutes a comparison between the outlay occasioned by his propositions and that contemplated by the preliminary project for the infantry and cavalry courses of training.

Equipment.—The traveling bag costs 6 fr., the valise 19 fr. 50, and the shoulder cartridge belt 8 fr. 50. In the infantry the knapsack and cartridge boxes cost 25 fr., whence a difference of 9 fr. per man.

Bicycles.—The picked soldier will use at the maximum two machines. If these are delivered at half price the expense to the State will be 200 fr.; if not, 400. In either case 10 fr. must be added for supplying lamp and bell. The excess expense amounts thus to a maximum of 210 or 410 fr. (In the latter case the 50 centimes allowance must still be deducted.)

Cost per man.—For 178 days (90 at recruit school, and 8 supplementary courses of 11 days) the increase reaches 445 fr. if the commutation for hire is paid, and 356 fr. if it is not.

Prolonging the recruit school.—School carried to 90 days and landwehr courses done away with, there still remains, in comparison with the infantry, an excess of 17 days' service; the price per man is thus 59 fr. above that of the foot soldier.

Total of excess expense for the infantry cyclist during his special service:

Personal equipment	Fr. 9	9
Machines	Fr. 210 or	410
Increased days duty	Fr. 59	59
Cost per unit	Fr. 445 or	356
Total	Fr. 723 or	834

A maximum that in fact might bear a reduction of 100 fr.

Another comparison might be instituted between the necessary cost for a dragoon and a cyclist.

Total excess of expense for the dragoon:

Uniform and personal equipment	Fr.	42
Horse equipment	Fr.	200
Horse	Fr.	3,735
Increased days of duty	Fr.	24
Difference of cost per unit	Fr.	837
Total	Fr.	4,838

This calculation gives 3,735 fr. for the horse alone. The budget for 1904 contemplates an expenditure of 2,649,351 fr. for cavalry horses, with, on the other hand, 740,500 fr. receipts, say a net expenditure of 1,908,851 fr. This sum covers a strength of 5,107 men, say 373 fr. .05 per man yearly. Service lasting 10 years, we reach this total cost of 3,735 fr.

It is sufficient to compare the differences in cost to understand that by means relatively feeble we arrive at noticeably re-enforcing our cavalry.

* * *

In a closing chapter the author, glancing backward, points out why he is anxious to show the importance of infantry cyclists. He demonstrates that from instant to instant cyclists can be transformed into infantrymen and he calls to mind the changes that should be made in armament, dress, equipment, recruiting, training and organization of cyclist infantry.

A subsequent course coinciding with the maneuvers and a new statute allowing the formation of a cyclist unit, will suffice to convince our authorities and our commanding officers of the line of the necessity for reorganization. The situation would then be faced under its true aspect and the units could be organized. At the start it would be proper to create for each division one infantry cyclist company and one cyclist orderly company. Cyclist orderlies should be organized into companies so as to assure better progress in their duties; men would remain in direct connection with their chiefs and the numerous inconveniences now manifest would be avoided.

As to the fundamental idea of organization, it should be that cyclist corps be *good infantry,* imbued, as to fire action, with the precepts of our cavalry regulations.

MARCHING RESULTS IN THE CYCLIST COURSES FROM 1896 TO 1903.

Year	Duty	Length of march		Strength in round numbers	Route Covered.	Distance km.	Approx. ascent in m.
		Hours	Days				
1896	Rect. School	14	1	80	Bâle—Staffelegg—Aarau—Olten—Hauenstein—Bâle	112	700
1896	do.	14	1	80	Bâle—Delémont—Bellelay—Reconvilier—Moutier—Delémont—Bâle	144	700
1896	Suppy. Course	12½-14	1	80	Foregoing routes, by section, 2 other routes added	101-144	500-780
1896	do.	12¾-14¼	1	80	Bâle—Winterthour by 4 routes	110-125	400
1897	N. C. Os' School.....	17¼	1	50	Berne—Bulle—Saanenmöser—Thoune—Berne	187	750
1897	do.	14	1	50	Berne—Spiez—Interlaken—Merligen—Berne	124	...
1897	do.	7	½	50	Berne—Köniz—Schwarzenbourg—Thurnen—Berne	60	330
1897	do.	29	2	50	Berne—Yverd.—St. Croix—Les Vernières—St. Blaise—Berne	226	760
1897	Suppy. Course	10¾	1½	100	Berne—Meiringen—Berne	186	...
1897	do.	32½	1	100	Berne—Scleure—Aarberg—Gümenen—Berne	106	...
1898	do.	30¼	1½	65	Berne—Bule—Vevey—Lausanne—Morat—Berne	213	500
1899	Rect. School	35	1½	185	Berne—Merligen—Grindelwy.—Interlaken—Wimmis—Kehrsatz—Berne ..	149	500
1899	do.	31¼	2	185	Berne—Bienne—St. Imier—Le Locle—Les Verrières—Travers—St. Blaise—Berne	218	640
1899	Suppy. Course	38¾	2	130	Berne—Brunig—Zurich—Langental—Berne	307	580
1900	do., N. C. Os' School.	53½	2½	100	Berne—Fribourg—Bulle—Vevey—Aigle—Pillon—Thoune—Berne	243	1,730
1902	Rect. School	65½	3	220	Berne—Aarau—Staffelegg—Laufenbg.—Laufon—Pleigne — Porr. — Damvent—Rangiers—Bellelay—Berne	323	1,700
1902	Suppy. Course	87*	3½*	135	Berne—Ins—Valangin—Les Brenets—Les Verrières—Fleur.—St. Croix—Yverd.—Vallorbe—La Sarraz—Morges—Morat—Berne	320	2,400
1902	do.	14¼	1	135	Berne—Signau—Wiggen—Schangnau—Schallenbg.—Thoune—Berne (14 km. in mountainous country)	102	550
1903	N. C. Os' School.....	7	1	50	Berne—Morat—Yverdon (the men reported for duty at 3 p. m. the afternoon before)	73	...
1903	do.	63½	3	50	Yverd.—Genève (by 4 roads)—Chancy—Genève—Nyon—St. Cergues—Noirmont (entry)—Le Brassus—Le Pont—Yverdon (42 km. on foot through the rain on Noirmont)	274	1,300
1903	Suppy. Course	32	1½	80	Yverdon—La Sarraz—Le Pont—Les Races—Pré de l'Haut—Les Grands Crosets—Pré de Bière—Marchairuz—Bière—La Sarraz—Yverdon (20 km. on foot through snow to Mont-Tendre)	125	1,350
1903	do.	26	1¼	80	Vverdon—Payerne—Gümmenen—Payerne—Yverdon	112	...

*Combined with 6 individual target practices and one battle practice by groups, at unknown distances.
Total days marching, 36. Total distance run, 3,900 km. Climbing on mountain roads, 15,500 m. Mean daily march, 108 km. 5 and 430 m. ascent.
Mean strength of detachment, 103 men.

*THE FUTURE OF THE RUSSIAN NAVY.**

RUSSIA never is, but always to be blessed. She is always big with schemes; her friends and sycophants are continually talking of her "might" and conjuring up phantom pictures of what she could do if she would. Just now little is heard of the millions of men under arms of whom it was the custom to boast a year or so ago, but the world is asked to marvel at what the navy of Russia will be when it has been built up once more. It is an idle task to anticipate the events of the inscrutable future, but this form of prophecy is one of Russia's most valuable national assets. She is, and always has been, feared, not for what she has shown that she can do, but on account of what her apologists claim she could do. She was thus exaggerated into a great naval and military Power, at whose threats Chancelleries trembled. It remained for the smallest, poorest, and least "civilized" of the Powers to prick the bubble which Russian agents had industriously blown, with the result that Russia's military prestige for months past has been sinking in the eyes of the world, and she has ceased for the time to be a naval Power of any consequence. What remains of her fleet is to-day without influence on the course of events in the Far East and without respect in the West. It is in a state of suspended animation; it lies between the Eastern and Western worlds, inert and demoralized. Now that matters have reached this pass, and the British Admiralty have admitted that the removal of the menace of the Russian fleet has caused the Board to amend the shipbuilding programme, the ears of the people of the United Kingdom are being assailed with tales of the great fleet which Russia is about to build to replace the fleet she has lost. Those who would thus freeze the marrow in the bones of the British nation have misread the chapter of Russian naval disasters in the Far East, and they would do well to ponder carefully the remarkable series of events which have occurred since the war began. The fact is that Russia has practically ceased to be a naval Power. What ships of war she possesses are in what may be regarded as waters beyond the sphere of

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political influence. Every modern fighting ship fit for the open sea has been withdrawn from European waters and sent to the southern portion of the Indian Ocean. The original idea was that they should make a desperate attempt to right the balance which Japan adjusted so dramatically to suit her own ends at the beginning of the war; but for the time this idea is postponed, and the Russian fleet is still waiting.

History supplies no parallel to the events at sea which immediately followed the outbreak of war. The strength of the squadron at the beginning of 1904 had been carefully measured by the naval authorities at St. Petersburg, and they were satisfied that the ships in the Pacific ready for action were sufficient to deal with the fleet of Japan. Europe believed that the prestige which the Tsar's navy enjoyed was founded in a high state of efficiency. Even in Great Britain, where the essential factors of naval power are more accurately assessed, the chances of victory falling to the Russians were regarded in many quarters as open to little doubt, and on the Continent the suggestion that the fleet flying the St. Andrew's Cross in Far Eastern waters was in any danger of defeat was scouted as absurd. In Russia itself, confidence in Admiral Stark's ability and the resources at his command to urge successful war against the ships opposed to him was complete. Only as lately as October last, after the First Pacific Squadron had been decimated and its remaining units, more or less seriously damaged, had flown in panic to the shelter of various harbors, did reinforcements start for the scene of hostilities. According to the most optimistic prophecies indulged in at Cronstadt itself, these ships, which began their voyage so disastrously, owing to the nervous excitement and poor *morale* of the officers and men, could not reach Vladivostok, the port for which they were said to be making, until April at the earliest. Within a month of the setting out of this armada, Japan had rendered absolutely useless all the men-of-war remaining at Port Arthur, and thus before Admirals Rojhestvensky and Folkersahm had got far on their voyage to the Far East the whole naval situation was again rudely changed, and they have remained in a state of suspended animation, Micawber-like, waiting to see what will turn up.

Russia has been forced to abdicate her naval position in the West in order to deal with the situation in the Far East. It is impossible to conjecture any combination of fortuitous circumstances which can reinstate the fleet of the Tsar in the near future as an influence in European politics, for greater than the loss of ships—and this has been considerable—has been the loss of prestige, the revelation of defective

organization and war training. Even in the event of the Japanese navy being defeated—a possibility which is not generally entertained—the ships that will remain to the victor will have suffered more or less grievous injury in the conflicts and must be a negligible quantity; if, on the other hand, the high hopes which the outgoing ships bear with them are doomed not to be realized, and the Second Pacific Squadron, with its reinforcements, shares the fate which has overtaken the First Pacific Squadron, Russia's fleet will practically cease to exist. In any event, Russia must come out of the naval struggle with a navy of the smallest fighting value.

The point which the apologists for Russia fail to recognize is that she has never been a great maritime nation. Since the time of Peter the Great she has had a navy, an exotic and purely political instrument. In some measure the Russian fleet in its earliest days was cradled in England, and on one occasion, when it co-operated with a British squadron, Peter the Great hoisted his flag in command of the combined forces. In the eighteenth century the Russian navy attained some reputation as a fighting force. It was not so big that the maritime portions of the Empire could not supply it with an excellent body of officers and men, more or less versed in the lore of the sea, and possessed of some aptitude for naval life; in particular they were brave. But in these days of the glory of the Russian fleet, the high prestige which it acquired was due largely to the leadership of officers of British origin, particularly Scotsmen. The story of Russia on the sea at this period bears testimony to the deeds of Admirals Elphinstone and the Greigs, grandfather, father, son, and grandson; of Admirals Lord Duffus, Gordon, G. Paddon, and F. E. J. Keith; Captains Sir F. Thesiger, Armitage, Bark, W. Baker, Billing, John Deane, W. Batting, James Todd, F. Dennison, Crown, Benjamin Edwards, Andrew Simpson, Samuel Gibbs, Fitch, J. Lawrence, Stubbs, J. Waldron, J. Trevennen, and Trevegar; Lieutenants Dugdale, Mackenzie, and a number of others who took a leading part in raising the Russian fleet to a position of some distinction in the eighteenth century, while at St. Petersburg and Cronstadt Englishmen filled positions as chief constructors, with many of their countrymen associated with them in their professional work.

Six years ago, when the fame of the Russian fleet and its imposing growth were in every one's mouth, that sound observer, Sir George Sydenham Clarke, now the Secretary of the Committee of Imperial Defence, wrote as follows of the Russian navy and its achievements:—*

*"Russia's Sea-Power."

"Russian naval prestige rests wholly upon her wars with Sweden and Turkey in the last century. If the ambitions of Charles XII had taken a naval rather than a military shape, the far wiser aspirations of Peter the Great would have been less quickly realized. It was a Sweden in her decadence that Russia successfully opposed at sea, and the seamen by whom Russian victories were won were largely drawn from the population of Swedish provinces. Moreover, the Russian navy of the eighteenth century owed its fighting efficiency mainly to British officers. The Turks were never a great naval nation, and the fighting in the Black Sea resolved itself principally into affairs of flotillas, while the victory of Tchesme was wholly due to the skill and gallantry of Scotchmen. At Navarino no serious demand was made upon the Russian squadron, and at Sinope the conditions were so unequal as to preclude deductions. In the past the Russian navy has not shown marked enterprise, produced great naval commanders, or proved conspicuous in seamanlike ability. Nelson's aphorism, 'Close with a Frenchman and outmaneuver a Russian,' expressively sums up the opinion of the greatest admirals. Ancient traditions and inherited aptitudes are wanting to the Russian Empire, which has been built up from an inland centre by people who, with set purpose, extended their dominion towards the sea. Sea borne commerce, which has been alike the support and the educating force of other nations, has played little or no part in the development of Russia."

In view of later events, this masterly summing up of the Russian navy deserves to be recalled. When Sir George Sydenham Clarke wrote these words the Russian fleet was still regarded with a certain admiration even by British naval officers. Hidden away as it was in the Baltic and the Black Sea, naval judgment was founded upon little more than rumors, and it has proved unreliable. The fact is, that in the nineteenth century the Russian navy not only added nothing to its prestige, but owing to failure to recognize the change in conditions of warfare afloat, which occurred after the introduction of steam, armor and rifled guns, it lost ground. After the Russo-Turkish War the navy, it is true, experienced a renaissance. It was recognized that the conflict might have been conducted more expeditiously if Russia had had an adequate fleet in the Black Sea to ensure the safe passage of troops. Consequently the work of building a new navy was taken in hand, and at the same time a change from sails to steam as the motive power had to be made, in accordance with the action of other Powers. It was a bad day for Russia when mechanical propulsion was introduced. She had a fair supply of sailors of splendid courage and magnificent hardihood, but she possessed no system of education

and no trades to provide the seamen of the new type instinct with a mechanical aptitude. As the years passed, and the domination of physical science on board men-of-war became more and more pronounced, the Russian deficiency became increasingly apparent. No nation without high technique can maintain a great fleet in efficiency in these days.

Russia refused to face the situation. The Admiralty at St. Petersburg still looked upon the mere ships as synonymous with sea-power, and additions were made to the fleet with little or no regard to the most important factors, properly educated and well-trained crews. As the demand for more seamen increased, men were called from the fields in districts far removed from the sea. They had no love of the life, the sea was to them a force which they did not understand and did not wish to understand, and at the same time they were lacking in intelligence and in all mechanical knowledge. They were agricultural laborers, that and nothing more. The greater the fleet became—the more rapidly ships were built in French, German, American and Russian shipyards, the more apparent became the difficulty to obtain crews, and year by year the quality of the *personnel* fell. It is not suggested that the Russian sailor has been or is devoid of courage. On the contrary, he has always been brave and daring, and in the present war he has shown his metal on many occasions. But the day has passed when brute courage, unallied with an active, trained mind and mechanical skill, counted for much in naval warfare. While Russia should have been concentrating attention on the means of training men for her fleet, she was satisfied with building ships, or ordering them abroad—ships, still more ships—under the delusion that these vessels, however inadequately manned, meant power.

Her geographical position added still further to the disadvantage under which she suffered in creating a great navy. She had to organize four navies, one for the Far East, one for the Caspian Sea, one for the Baltic, and another immured in the Black Sea by the Treaty of Paris. She had to utilize the Baltic for the training of her main sea forces, and here each year the winter closed up the waters early and failed to release them until late in the spring. All the months which Great Britain and the United States employ in training were useless to the Russian Admiralty. As soon as winter closed in, the ships became fast frozen, and a large proportion of the crews were withdrawn ashore. In these circumstances Russia struggled in the years prior to the war to fit out and train a fleet to defend her forward policy in the Far East. She worked with such resolution, such cool defiance, such absolute confidence, that she deceived practically

the whole world. Japan alone saw through the imposing array of ships and appreciated their real worth.

When the war opened, Russia had in the Far East, or well on their way to the Far East, a squadron equal to the whole fleet of Japan—on paper. Within six months that impressive array of ships had been reduced to impotence, while the officers in charge of those which were outward bound considered themselves compelled to return to Europe. It is unnecessary to describe at length the series of misfortunes which robbed the Russian squadron of its power to take the offensive, but summarizing the events down to October, so far as they affect the most important vessels, the battleship Petropavlovsk, and the cruisers Rurik, Variag, Pallada, and Boyarin, were lost, the battleship Tsarevitch and the cruiser Askold disarmed in neutral harbors, in addition, to a number of small ships, and the Cromoboi rendered unfit for service by injuries received by grounding. The fate of the Rossia is uncertain. Then, early in December, came the final debacle, when the Japanese gunners, having captured 203 Metre Hill, poured shells on the ships in Port Arthur and sunk those which the Russians themselves did not render useless. The ships' guns had been landed to strengthen the fortifications and the crews withdrawn to assist the army, so that the vessels were inert targets for the guns of the besiegers, and from the first their destruction was in no doubt. Consequently, of the splendid squadron with which the Russians began the war, there can remain more or less intact, only one armored cruiser at most, the Rossia, at Vladivostok. Japan has wiped out to all intents and purposes seven battleships, three armored cruisers, and seven protected cruisers, besides torpedo craft. In the course of the struggle the Japanese ships have not escaped unscathed, but the only important vessels which have been lost have been the battleship Hatsuse, sunk by a mine off Port Arthur, and the cruiser Yoshino, which foundered after collision with the Kasuga, one of the two armored cruisers brought from Argentina on the eve of hostilities.

When we come to examine the position of the belligerents on the sea, it is, therefore, apparent that in despatching a second squadron to the Far East, Russia has not forwarded reinforcements in the ordinary sense of the term, but has sent out a new squadron, which has nothing in the way of assistance to hope for. She is beginning anew, the contest for the command of the seas in the Far East, not with ships manned by experienced officers, ships which have maneuvered together in battle for months, but with men-of-war freshly commissioned with raw crews, who for the most part have never seen a gun fired in anger, and who must necessarily have had little

training. It takes five or six years to complete the naval training of a British bluejacket, while most, or, at any rate, a large proportion, of the men on board Admiral Rojhestvensky's fleet have been sent to sea for the first time; and it is no slight task to engage in battle with crews who must necessarily be strange to their duties.

It may be admitted that the despatch of this squadron to the Far East was an unparalleled event. It is the most imposing force which has ever passed in full fighting trim from West to East, indeed the biggest squadron of modern ships which has sailed any ocean on a warlike mission. Hitherto Russia has confined her ships to the narrow seas; now a large portion of them have had to pass out into the Atlantic, and the experience must have severely tested the courage and resourcefulness of the officers in command. The decision to fling into the conflict all that remains of the sea-power of Russia is an indication of serious resolve to spare neither life nor ships in the endeavor to win back the command of the seas.

Without the continuance of the security afloat, which she has enjoyed since the war opened, Japan will be undone. Only so long as the fleet remains supreme in the waterways behind the advancing armies operating in Manchuria can Japan hope for ultimate success. If by any means the outgoing Russian squadron should manage to intervene between Japan and the armies at the front, if it should gain the command of the seas, then Marshal Oyama's forces will not only be in dire peril, but under no circumstances can they expect to attain the national hopes. The Japanese army will be in the position of the French troops after the battle of the Nile. The sea command is the master-key of Japan in the present struggle, as it was of Great Britain in the war in South Africa.

But the Russian ships have not yet reached the Far East. The weakness of the movement lies in the fact that, owing to the conditions governing the sea-power of Russia, she was compelled to divide her forces for the passage, and rely upon the vessels reuniting at some point near the scene of action. The main portion of the fleet proceeded as far as Tangier, where it divided. One section, consisting of the five battleships Kniaz Suvaroff, Orel, Alexander III., Borodino, and Oslabia, with the cruisers Admiral Nakimoff, Dmitri Donskoi, and Aurora, five transports, a hospital ship, and a supply ship, passed out into the Atlantic, under Admiral Rojhestvensky, and proceeded by way of the Cape of Good Hope, while the other section, under Admiral Folkersahm, including the two battleships Sissoi Veliky and Navarin, the three cruisers Svietlana, Almaz, and Femtchug, six destroyers and five transports, made the voyage by way of the Suez

Canal, since the small craft could not be exposed to the heavy seas which are met with in the South Atlantic and Pacific during the winter months. Later on, a third division of the squadron, the two cruisers Oleg and Izumrud, eight torpedo-boats, and several auxiliary cruisers, also pursued the shorter route; and then went out a further assortment, consisting of a few vessels of slight fighting value which were styled the first section of the Third Pacific Squadron. By means of colliers sent in advance, and the kindly offices of other Powers, the ships obtained coal for the journey, though Russia classifies it as contraband.

There is the bare possibility that all will go well with the four divisions of the outgoing squadron, and that the whole force will be concentrated, and that then it will start out for Vladivostok in its full strength. Such a possibility is extremely unlikely, because in a large heterogeneous force, with strange and partially drilled crews, with ships, many of which are new, and therefore have untested machinery, mishaps will occur to rob the admiral of some units. In this event he will still have to move forward, and in impaired strength. For the sake of comparison, however, it may be of interest to compare the strength of the belligerents in the event of the Russian fleet in its full strength meeting the forces at the disposal of Japan:

JAPAN.

BATTLESHIPS (5).

	Date of completion	Displacement (tons).	Nominal speed (knots).	Main guns. 12-in.	Main guns. 6-in.	Gun protection (armor).
Mikasa	1902	15,200	19	4	14	14.6-in. (2)
Asahi	1900	15,200	18	4	14	14.6-in. (2)
Shikishima	1899	14,850	18	4	14	14.6-in. (2)
Yashima	1897	12,300	19	4	10	14.6-in. (2)
Fuji	1897	12,300	18	4	10	14.6-in. (2)
		69,850		20	62	

ARMORED CRUISERS. (8).

				10-in.	8-in.	6-in.	
Asama	1899	9,750	28	—	4	14	6.6-in. (2)
Tokiwa	1899	9,750	22	—	4	14	6.6-in. (2)
Idzumo	1901	9,800	24	—	4	14	6.6-in. (2)
Iwate	1901	9,800	21	—	4	14	6.6-in. (2)
Yakuma	1901	9,850	20	—	4	12	6.6-in. (2)
Adzuma	1901	9,456	21	—	4	12	6.6-in. (2)
Nisshin	1904	7,700	20	—	4	14	6.6-in. (2)
Kasuga	1904	7,700	20	1	2	14	6.6-in. (2)
		73,806		1	30	108	

PROTECTED CRUISERS (14).

	Date of completion.	Displacement (tons).	Nominal speed (knots).	Main guns. 12.6-in.	10-in.	8-in.	6-in.	4.7 in.
Takasago	1898	4,300	24	—	—	2	—	10
Kasagi	1898	4,784	22	—	—	2	—	10
Chitose	1899	4,784	22	—	—	2	—	10
Itsukushima	1892-3	4,277	17	1	—	—	—	11
Hashidate	1892-3	4,277	17	1	—	—	—	11
Matshushima	1892-3	4,277	17	1	—	—	—	11
Naniwa	1886	3,727	18	—	2	—	6	—
Takachiho	1886	3,727	18	—	2	—	6	—
Akitushima	1893	3,150	19	—	—	—	4	6
Niitaka	1903	3,420	20	—	—	—	6	—
Tsushima	1903	3,420	20	—	—	—	6	—
Suma	1897	2,700	20	—	—	—	2	6
Akashi	1897	2,700	20	—	—	—	2	6
Idzumi	1879	2,800	17	—	—	—	2	6
		54,663		3	4	6	34	87

Japan possesses in addition a number of unprotected ships of no great fighting value.

RUSSIA.

BATTLESHIPS (11).

	Date of completion.	Displacement (tons).	Nominal speed (knots).	Main guns. 12-in.	10-in.	9-in.	6-in.	Gun protection (armor).
Knais Suvaroff	1904	13,516	18	4	—	—	12	10 (1)
Alexander III	1904	13,516	18	4	—	—	12	10 (1)
Borodino	1904	13,516	18	4	—	—	12	10 (1)
Orel	1904	13,516	18	4	—	—	12	10 (1)
Oslabia	1901	12,674	19	—	4	—	11	9 (2)
Sossoi Veliky	1897	8,880	16	4	—	—	6	14 (2)
Navarin	1895	9,476	16	4	—	—	8	12 (2)
Nicolia I	1892	9,672	14	2	—	4	8	10 (2)
Admiral Apraxine	1898	4,200	15	—	3	—	4	8 (1)
Admiral Seniavin	1895	4,200	16	—	—	4	4	8 (1)
Admiral Oushakoff	1895	4,200	16	—	—	4	4	8 (1)
		107,366		26	7	12	93	

ARMORED CRUISERS (5).

				8-in.	6-in.	4.7-in.		
Vladimir Monomach	1885	6,061	15	5	12	—	—	10 (3)
Dmitri Donskoi	1885	5,882	16½	—	6	6	—	10 (3)
Admiral Makimoff	1888	8,524	16½	8	10	—	—	8 (3)
*Rossia	1898	12,130	20	4	16	—	—	2 (2)
*Gromoboi	1900	12,336	20	4	16	6	—	6 (2)
		44,933		21	60	12		

*Reported damaged.

PROTECTED CRUISERS (6).

	Date of completion.	Displacement (tons).	Nominal speed (knots).	Main guns. 6-in.	4.7-in.
Oleg	1904	6,675	23	12	6
Aurora	1902	6,630	20	8	—
Svietlana	1897	3,824	20	6	—
Almaz	1903	3,285	19	—	4
Jemtchug	1904	3,200	24	—	6
Izumrad	1904	3,200	24	—	6
		26,814		26	16

Several auxiliary vessels, unarmored, have been fitted out by Russia, including the Dneiper (formerly famous as the Smolensk), and the Don (formerly known as the St. Petersburg).

ARMORED SHIPS.

Japan.							Russia.							
No.	Displacement.	Main guns.					No.	Displacement.	Main guns.					
		12-in.	10-in.	8-in.	6-in.	4.7-in.			12-in.	10-in.	9-in.	8-in.	6-in.	4.7-in.
13	143,656	20	1	30	170	—	16	152,299	26	7	12	21	153	12
PROTECTED CRUISERS.														
14	54.663	3 (old)	4	6	34	87	6	26,814	—	—	—	—	26	16

(1) These vessels have the latest Krupp armor. (2) These ships have Harveyed steel. (3) This is compound armor.

A mere "counting of noses" is not a reliable method of estimating fighting power. Those who have been to sea and witnessed huge squadrons maneuvered and drilled will readily understand that the man is still greater than his weapon, in spite of the triumphs of physical science in war equipment. The two fleets set out in summary above appear more or less on an equality, bearing in mind that Russia has an advantage in battleships, while Japan, on the other hand, is better off in the matter of armored cruisers. Russia possesses four quite new battleships with the hardest armor and the most penetrating guns, whereas the battleships of the Japanese belong to the preceding period in protection and artillery. Admiral Rojhestvensky's movements, however, must be hampered by a number of small or old ships, the usefulness of which for open sea warfare it is difficult to assess; under some circumstances they must prove a serious embarrasment. In the matter of torpedo craft the Japanese have an immense superiority, as they have also in cruisers, to act as "the eyes

and ears" of the battle fleet, and in auxiliary vessels for the supply of stores, etc. In the renewed conflict for the command of Far Eastern seas both belligerents will employ submarines, and each has about half a dozen. For the first time since the submarine was developed as a practicable weapon, the world will probably have an opportunity of seeing in actual warfare, as distinct from peace maneuvers, what underwater craft can accomplish.

So much for the ships themselves. Russia has an advantage owing to her possession of the four new batleships of the Borodino class. Does it, therefore, follow that she has the best fighting machine? We have seen the best constructed ships converted into loathsome shambles in consequence of the incapacity of those who fought them —in the Chino-Japanese and the Spanish-American wars. President Roosevelt, writing on the essentials to naval success, has remarked on the necessary preliminary preparations:*

"This preparation was absolutely necessary in the days of sailing full benefit from the delicate and complicated mechanism of the formidable war engines of the present day. The officers must spend many years, and the men not a few, in unwearied and intelligent training, before they are fit to do all that is possible for them and their weapons. Those who do this, whether they be Americans or British, Frenchmen, Germans, or Russians, will win the victory over those who do not. Doubtless it helps if the sailormen—the sea mechanics, as they are now—have the sea-habit to start with; and they must belong to the fighting stocks. But the great factor is the steady, intelligent training in the actual practice of their profession. When the day of battle comes the difference of race will be found as nothing when compared with differences in thorough and practical training in advance."

All experience bears out this judgment of President Roosevelt. In the Russian Navy this thorough practical training has been neglected, and the men have not the sea aptitude. The ships are manned by raw crews, to whom the excursions and alarums of warfare will be strange, and who have had no opportunity of learning how to maintain unremitting watchfulness, unvarying calmness and steadiness of nerves, hands, and eyes in face of a foe. On the other hand, the Japanese who will meet the outgoing Russian squadron are the same officers and men who have been fighting since the beginning of February, 1904, and before then had been unceasing in their maneuvers and drills. A keenness has been put on the natural fighting edge of

*"History of the Royal Navy."

the race, and it is in the light of this knowledge that the prophecy is made that the Japanese will deal as effectively with the Second Pacific Squadron of Russia as they did with the First Pacific Squadron.

Now that the Russian battleships and cruisers at Port Arthur have been annihilated, Admiral Togo has at his disposal all the Japanese Navy to meet and try conclusions with the Russian men-of-war. It is useless to attempt to anticipate the strategical dispositions which will be made by the Japanese, as so much will depend on local circumstances. It has been said that the presence of Nelson in command of a British fleet was equivalent to six battleships, and the Japanese feel the same confidence in Admiral Togo as British sailors reposed in Nelson. In naval warfare confidence in the leader is a national asset which it is impossible to over-estimate, and lack of confidence, as exemplified by the Russians in the sortie of the 10th August, when, as German writers have pointed out, it was the deciding factor in the running fight, may bring defeat to the strongest foe. The strategical situation is one of some complexity, but it has yet to be shown that it is beyond the power of Admiral Togo, with strictly limited forces at his command, to completely justify the high hopes which his countrymen entertain.

In any event, the important fact to be borne in mind is that Russia has suffered a far more serious loss than the ships which the Japanese have destroyed or driven for shelter into neutral ports to be interned. Russia has been compelled to lay bare to the eyes of the world a naval organization almost as inept and muddled as that of Spain before the war against the United States, and she has also shown how deplorably officers and men are lacking in practically all the essentials of war training. The fall of the Russian Navy has been infinitely greater than that of any other navy for many decades, because it had so much further to fall. Even visitors to Russian naval ports had been deceived by the seeming efficiency of the administration and the methods employed to fit officers and men for their duties. But at the first clash of war the whole structure of make-believe tumbled down.

Because the Russian Admiralty is talking of the vessels which will shortly be commenced in home and foreign shipbuilding yards, the whole world is asked to tremble once more, and that familiar stalking horse, the "might" of Russia, is being trotted out for further service. Russia may obtain a new fleet of battleships and cruisers in three years if she is willing to pay the price.

In that period Great Britain could, if need be, complete as many

as two dozen battleships. Ships of war of excellent construction can be obtained as easily as a suit of clothes, providing the purchaser has the money wherewith to pay for them. But the organization and *personnel* are not provided as easily. The machinery for modelling capable officers and well-trained seamen, stokers, artificers, gunners, and torpedoists is the product of many years, even where the human material has the special technical aptitude which is essential nowadays. The men who are available for the Russian fleet have no technique, nor have they the mechanical aptitude, nor, again, love of the sea. They are dumb driven cattle, whose hearts are not in their work. Russia may go on building ships of war, but these vessels are not sea-power. Sea-power is a weapon far less easily obtained. Russia must go back over her whole administration and re-model it; she must recognize that mechanical skill is even more essential in the *personnel* than brute courage, and that before her ships can be rendered fit to meet an efficient and adequately trained fleet at sea, the whole character of the *personnel* must be raised.

The bogey of what Russia will do is old and seer with years. Because the Muscovite Power talks of more ships and boasts of what will be done in the future, there is no occasion for nervousness on the part of neighbors and rivals. Russia may obtain ships if she has funds, but not until throughout the whole administration a new spirit is evident will those ships be a serious menace. Great Britain certainly must meet every ship when it is laid down by corresponding units, but there need be no haste or sensation. If to-morrow it is confirmed that Russia is about to have eight, ten, or a dozen battleships commenced in home and foreign shipyards, there will be no excuse for alarmist cries. We in the United Kingdom can hold our souls in peace. We can wait and watch. Not until the ships are actually under construction and their sides are ready for the armor, need we begin necessarily to bestir ourselves, and even if we give the Russian authorities this start, we can have our replies at sea before the new Russian ships are flying the St. Andrew's Cross.

ARCHIBALD S. HURD.

NEW ENGLAND WOODS.

My native woods! dear, unforgotten shades!
Fond memory seeks your cool, sequestered glades.
When on my bed I court sweet sleep in vain,
She roams your walks to soothe my weary brain.
Acadia's grove that wooed the sighing breeze
Had less of peace and fewer charms to please.
How oft I've sat in boyhood's dreamy hours
To muse of love beneath your sheltering bowers;
Or laid a shining weft on fancy's loom,
Through which the Fates have woven threads of gloom.
All, all your trees, the maple, chestnut, beech,
And hemlock drear, I knew, and loved them each.
Ah! sweet the sound as mid their leafy boughs
The oriole sang to cheer his brooding spouse;
Or haply tuned in pride his wondrous lay
To prove its notes, and shame the chattering jay.
More fragrant far than bloom from cultured grounds
The garlands plucked within your hallowed bounds:
The dainty trillium born in mossy shade;
The pitcher-plant for Dryad revels made;
The orchis pure that droops its blushing face;
And star of Bethlehem crowned with modest grace.
Still, still, methinks, a perfume fills the air,
And still I wish my lines had fallen there.
Familiar haunts that in my memory dwell—
Dear, native woods—farewell!—a last farewell!

By the late Henry Hubbard Pierce,
Captain U. S. Army.

Forest Grove, Oregon, December 22, 1882.

THE LIEUTENANT'S DILEMMA.

By Henry R. Brinkerhoff, Colonel U. S. Army.

The food was then placed upon a platter made from the twigs of the yellow willow, ingeniously woven together by the use of a woof of tenacious threads obtained from the inner bark of the amole cactus, and eventually carried to the lodge occupied by the Lieutenant and his companion. The platter was accompanied by another vessel of like construction, covered with slices of venison, cut from the loins of the young deer, and "broiled to a turn" over the coals in which the turkey had been cooked.

The host gave the signal for the feast to begin, and pushing the platter containing the turkey towards the Lieutenant bade him carve for himself. An outdoor life, especially in the mountain region of New Mexico and Arizona, usually develops a phenomenal appetite. The Lieutenant and his companion afforded no exception to the rule, and beginning at once without further encouragement, ate of the delicious meats set before them, with a pleasure they had seldom ever before experienced.

When at last the feast was finished, a couple of women made their appearance and carried the platters from the lodge. The host then produced a pipe made from the antlers of a deer, and proceeded to fill its capacious bowl with killikinick, prepared from the aromatic bark of the red sumac and the yellow willow. He lighted the bark gravely when he had finished filling the bowl, using an ember brought to him by one of the women, and after a few vigorous puffs passed the pipe to his guests.

"The heart of Kishnawau," he observed when the bark in the pipe had all been consumed, "burns for the friendship of the white chief."

"The heart of the white chief," replied the Lieutenant, "burns vigorously in response."

A long silence followed these conventional exchanges, which was broken at last by the young officer who ventured to inquire how many days the Indian had followed himself and his companion in the mountains.

"Three days," replied the Ute. "Three days and three nights."

"Why did Kishnawau follow the white chief?" asked the officer. "Did he hope to find him asleep that he might steal his horses?"

"The heart of Kishnawau was not as kind then towards the white chief as it is now," he replied, evasively.

"However that may be," said the Lieutenant, decidedly, "it is wrong to steal horses from either friend or foe."

"So says every man who has many horses," replied the Indian.

"Possibly so," said the Lieutenant, "but nevertheless it is wrong."

"To take horses from an enemy," said the Indian, earnestly, "is a worthy deed, and the white man who hunts in the mountains and kills the game that the Utes depend upon to furnish food for their women and little ones, is an enemy. Do the white chief's people ever steal horses?" he concluded, abruptly.

"Our moral ethics," replied the Lieutenant, evasively, "include the sacred teachings embraced in the words, 'thou shalt not steal,' and wherever we go we teach the peoples with whom we come in contact to accept those words as their guide."

The trapper found great difficulty in making the Indian comprehend the substance of the Lieutenant's words, and after many repetitions abandoned further effort as useless.

"It seems to me," he said at length, addressing the Lieutenant, "that it will be best to abandon further effort in this field. The old scoundrel refuses to understand, though I'm sure he comprehends fully what is meant."

"Possibly," said the Lieutenant. "But I'm afraid your charity and patience is not now particularly in evidence. If our kind friend here misunderstands us wilfully, because we don't agree with him, I'm sure we can find abundant company for him wherever we go. Butler says, you may remember, that:

> 'It is in vain
> We argue 'gainst the grain
> In hope to incline men to do
> What they're averse to.'"

The trapper in common with people of his class on the frontier of the country at this time, was greatly prejudiced against the red man, and could see nothing to admire in anything he did or said. If he tried to be good according to the white man's standard, these people charged him with being a hypocrite. If he sought for a fair chance in any commercial transaction, they denounced him as dishonest. If he was prosperous in horses and sheep, they called him a thief. If his possessions were limited, they asserted he was a lazy vagabond. If he indulged in a dance, they declared he was preparing for mischief, and if he went on a journey they were sure his travels would

end on the war path. Altogether the red man seldom found justice at the hands of the trappers and his brother wanderers on the frontier.

Occasionally one of these Ishmaelites was smitten by the charms of a dusky maiden, and abandoning his associates entered with her upon the nomadic life of her people. It happened usually in such cases that the "squaw man," as the unfortunate frontiersman was called by his fellows, led the way in his new relations to lower conditions than had existed before among the people. These results were invariably attributed to the evil influence the Indians exerted, rather than to the control the white man was able to effect by reason of his superior intelligence.

The Lieutenant was fully aware of the prejudice the trapper entertained against the Indians as a people, and accepted many of the assertions of his companion concerning them with great reservation. He felt skeptical also at times, of the translations of Kishnawau's words, and feared that the truth was occasionally sacrificed for a liberal and possibly unjust rendering. He was satisfied, however, that the interpretations on ordinary subjects were practically correct after being divested of the wordy embellishments often used by the trapper.

"I should think," said the Lieutenant, "that the theft of horses would often provoke war between the tribes."

"Yes," exclaimed the Indian, eagerly, evidently well pleased that the conversation had turned in a direction that promised to be free from perplexing questions. "Yes," he repeated, "the theft of horses has been the cause of many wars. Very many wars," he continued deliberately, as though he indulged in reminiscence while he spoke. "It made a bloody war once between the Utes and the Navajoes.

"It came about in this way," he said, as he observed that the Lieutenant and his companion were watching him attentively, evidently waiting for him to speak. "Meenomo, the head chief of the Utes, had a beautiful daughter and many of the young warriors of the nation watched the girl as she grew to womanhood, intending to offer horses for her when the proper time should arrive.

"At last a Navajo warrior came one day on a visit to some friends who lived in the village in which the chief had built his lodge, and when he saw Meena, the chief's daughter, he could not control his desire for the girl. Returning quickly to his hogan in his own country, he selected some fine horses from his herd, and driving them before him came again to visit his friends in the Ute village, accompanied by two young companions.

"On reaching the village the Navajo hastened to offer horses

for the girl. Beginning with two he added one each time until seven were offered. Such an offer for a maiden had never before been heard of in the nation, and the chief rubbed his hands with delight. He nodded his head at the Navajo as a sign of acceptance, and was about to lead the horses away when he discovered that one of the animals bore his own mark, having evidently been stolen from a herd of the Utes then grazing in the mountain ranges in the direction from which the young warrior and his companions had come.

"The Navajo hastened to explain that he had bought the horse from an Apache warrior whom he had met on the way, but the chief was angry and doubted his words. At last he ordered the Navajo to leave the village with his horses and friends.

"The young warrior took the affront quietly, to the surprise of the people who stood near, and leading his horses away, quickly disappeared among the hills that lay alongside of the village, going in the direction of his home.

"Early on the following morning Meena took the gourd from her mother's lodge and singing as she went, made her way down the crooked path through the willow bushes towards the stream, to get water for the lodge. As she came near the stream the Navajo suddenly sprang out of the bushes into the path before her, and seizing her in his arms quickly carried her away. She struggled violently to free herself from his grasp, but she was a frail young girl, and her efforts were useless. She tried at length to scream, but he quickly placed his hand upon her mouth and smothered her cries.

"It so happened that another village maiden had gone for water a little earlier in the morning, and on returning had hid herself in the bushes when she heard Meena coming down the path, intending to frighten her in play as she passed, and had seen clearly what occurred. As soon as the Navajo disappeared with the girl in his arms the maiden ran to the village and gave the alarm. The chief hurriedly mounted and accepting the services of two warriors who happened to be passing at the time, set out at once in pursuit of the Navajo. The sun had scarcely gotten well overhead when Meenomo and his warriors came in sight of the fugitives. The two companions of the Navajo halted at once, and when the chief came near they offered him battle, to cover the flight of the young warrior and the girl. Meenomo attempted several times to get past them that he might follow the Navajo who had stolen his daughter, but he had ridden very rapidly in the pursuit and his horse had become greatly fatigued and could scarcely go on. The chief turned at last upon the two Navajoes when

he saw that further attempt was useless, and closing upon them killed them both with his own hand.

"The Navajo got safely away with the girl and Meenomo returned to his lodge empty-handed.

"The chief was in a great rage, and calling his warriors together, led them against the Navajos and captured their horses and sheep, and burned their hogans, and killed their people. He was a great warrior and was never so happy as when at the head of his braves leading them to battle.

"At last the Navajoes gathered their warriors together and went on the war path against the Utes. The two forces met finally on the banks of the San Juan and fought a great battle, in which the Utes were victorious. The blood rose to the tops of the warriors' moccasins as the battle went on, and finally when the victory was gained the great, red blood sank slowly into the ground and colored the earth so indelibly that the rains have never been able to wash out the stain."

When the Indian ceased to speak he glared about him wildly, and nodded his head repeatedly in a defiant manner, apparently desiring by this means to express his gratification over the result of the battle, and to give warning of results that might follow future provocation of the Utes.

"It seems to me," said the Lieutenant, after some time had succeeded the pantomimic display of the Indian, "that the quarrel was caused by the theft of the girl rather than by the theft of the chief's horses."

"No, no," replied the Indian, earnestly. "The white chief does not understand. Meenomo was angry, to be sure, because his daughter had been stolen, but it was the theft of his horse that caused him to go on the war path. If the matter had been permitted to drop, the herds of the Utes would no longer have been safe."

"The safety of the maidens of the nation then seems to have been of secondary importance," said the Lieutenant.

"Yes," replied the Indian, "but the maidens were never in danger. After Meena had been carried away by the Navajo, every young woman in the village made her way slowly, morning after morning, down the crooked path among the willows, on her way to the stream for water, and it never happened that any one of them was carried away. I think," he continued, "they were safe and needed no war to protect them.

"But now," he went on, after a brief pause, "Kishnawau will go to his lodge and bring a gift to the white chief that will make his heart glad."

He immediately withdrew from the lodge, and after a brief absence reappeared, leading by the hand his youngest daughter, quite a comely Indian maiden of marriageable age, and in a brief speech presented her to the young officer.

"The white chief," he said, "saved the life of Kishnawau, and he now brings his daughter, Satuma, to be the wife of the chief, to reward him in part for his brave deed."

The girl hung her head and made lines on the ground with the toe of her moccasin. Occasionally she partially raised her head and glanced surreptitiously at the officer, who stood the meanwhile watching her curiously, and seemingly greatly perplexed over the honor so suddenly and unexpectedly thrust upon him.

She wore a short woolen skirt of native manufacture, that came to her knees, and was held in place at her waist by a leathern belt ornamented with many bright colored beads and large buttons of silver. Her long, dark hair hung in a thick braid at her back, extending below her girdle, and was tied at the end by a bright ribbon of wool that had been manufactured in a native loom. She wore clean, white deerskin leggins that extended from the bottom of her skirt to her ankles, where they were joined to dainty moccasins of buckskin, embroidered by means of flexible threads of porcupine quills, with fanciful figures of flowers and trees. A wide woolen scarf made of red and black threads of native spinning, was wrapped about her shoulders, its ends falling across her breast like a baldric. A richly colored blanket of fine wool, lay carelessly upon her shoulders, partially covering her bare arms and adding whatever else may have been needed to complete the picturesque appearance of her dress.

"It is the custom of the Utes," continued the Indian, "to sell their daughters for horses and sheep, but Kishnawau wants none of these from the white chief. If he will take the daughter to his lodge, the father will be content."

"I guess you're in for it, Lieutenant," said the trapper, observing the confusion into which the young man had fallen.

"But tell him I can't do it," he said, "I am already engaged to be married."

The Indian shook his head earnestly when the trapper interpreted the words of the Lieutenant.

"That makes no difference," he said. "The white chief is worthy of more wives than one."

While the trapper endeavored to explain to the Ute the marriage customs that prevailed among the American people, the girl recovered

somewhat from the diffidence she had shown when she first entered the lodge, and frowned vigorously at the young man whenever he looked at her. Occasionally she pursed her mouth as she frowned, but whether she did it as an intimation that she wanted to be kissed, or because she pouted from displeasure, was not quite clear to the Lieutenant. It was evident, however, that she was not greatly impressed with the "white chief," to whom she believed she was about to go as his wife, and was inclined to be defiant, if not altogether rebellious. Her conduct rather piqued the young gentleman, who entertained a high opinion of his personal appearance, and his ability to captivate the opposite sex at pleasure. It was almost mortifying to him that this Indian maiden, who in his estimation had never before, probably, seen so fine a specimen of physical manhood, did not at once fall at his feet in ecstasies over the mere prospect of becoming his wife. But he was convinced on reflection, that the spirit she exhibited was largely assumed and that a little advance on his part would break it all down. He hesitated, however, to attempt the conquest, fearful that success might be followed by claims he could not satisfy.

"Tell the Indian," he said at length, "that we will defer the consideration of this matter for the present. To-morrow, maybe, when we have slept and are rested, we may talk of it again."

The girl hastened from the lodge when the words of the Lieutenant were interrupted by the trapper in her hearing, hesitating for an instant at the door as she went out, to pout with her lips once more at her proposed husband.

"She a vixen," said the young man, "and richly deserves to be subdued."

The father had observed the defiant expressions of his daughter, and a stormy scene occurred when he took her back to the lodge of her mother.

She was meek enough on the following day when she once more appeared before the young officer, and seemed much overcome by the prospect before her and very subdued in her manner. Tears showed in her eyes as she glanced inquiringly at the young man, and her face wore a pitiful appeal that was greatly in contrast with its expression on the previous day.

"The girl seems to have come to her senses," observed the officer to his companion. "But nevertheless the affair has gone far enough. Please tell our red friend," he continued, "that I don't want his daughter, and won't have her."

"No, that won't do," said the trapper. "That won't do at all. You

couldn't offer the father a greater affront than to refuse his gift. We will have to resort to a little diplomacy to get out of the affair."

"Well, tell him, anyway, that the girl didn't seem yesterday to be particularly desirous to have me for her husband, and that Americans never take a woman against her will."

The Indian smiled almost audibly when the words of the Lieutenant were interpreted to him.

"It was all new to her then," he said, "and the white chief was a stranger. But to-day she greatly admires him, and would weep until her eyes were gone if she could not be his wife."

"But tell him," said the Lieutenant, addressing the trapper, "that I desire to continue hunting for awhile, and that a woman would be in the way. Tell him," he continued," that white people never take their wives with them on hunting expeditions, and that some time, possibly, I may come back for Satuma, but that I cannot take her with me now."

The discussion lasted until midday, and ended finally in an agreement that the matter should remain in abeyance, awaiting the close of the hunting season.

When this agreement was finally reached, the Lieutenant and his companion began to prepare for an immediate departure from the village, notwithstanding the earnest appeals of Kishnawau that the visit should be prolonged.

The young girl quite gave way to a paroxysm of weeping when the Lieutenant finally bade her good-bye, and her father hastening to the side of the trapper earnestly assured him that his daughter's emotions were caused by the affection she entertained for her husband. The young man himself was quite visibly affected, and turning to his companion as they rode away, said softly:

"It grieves me much, after all, that I cannot accept the tribute of this young heart. Its offering seems pure and unaffected, and comes like a pearl out of unmentionable conditions."

"Don't encourage that view for a moment," urged the trapper. "Kill it in its infancy. Remember the warning you remarked yesterday was given once by a poetry man who said, 'A little fire is quickly trodden out; which, being suffered, rivers cannot quench,' or something like that. It would break my heart to see you become a 'squaw man.'"

The Lieutenant made no reply, but turning about in his saddle waved adieu with his hand to the Indian and his daughter, and then rode on rapidly, following his companion.

"You're luckily out of it, young man," said the trapper, as they rode

along. "It was a mighty close call for awhile and the chances were good that the old redskin would take offense at your refusal to accept his daughter, and go on the war path against us. It was fortunate, I think," he continued, "that the girl didn't seem to fall in with her father's views very cordially, especially at the beginning."

"Yes," replied the Lieutenant, indifferently, "I suppose the affair was somewhat threatening for awhile. But so far as the girl was concerned," he continued with much animation, "I had no fear whatever."

The young man indulged in a brief laugh when he ceased to speak, in an effort apparently to cover the vanity exhibited by his remark.

"You flatter yourself, I am sure," said the trapper. "It is clear in my mind," he continued, after a brief pause, "that the girl was not greatly impressed by her new master."

"I can't possibly be deceived in such matters," replied the Lieutenant, impatiently. "Her tears and the imploring look of her dark eyes as she turned her face towards me when we took our departure, appealed to me with a force I could scarcely resist. It would take but little persuasion to induce me to give up home and country and friends, and return to the simple, unconventional, little Ute rose, blooming——"

"There! there!" interrupted the trapper, "You're getting sentimental and inclined to be decidedly foolish. In my schoolboy days I remember to have read somewhere that 'until a man is thirty he regards every woman he meets as an angel.' It seems to me, Lieutenant, you afford a fair illustration of the truth of the rhymster's observation. The Indian girl has a pretty face, I admit, but that's all can be said in her favor. She's an Indian, and always will be one; a dirty, lazy——"

"Steady!" exclaimed the Lieutenant. "Let us drop the subject. It's getting uncomfortable for both of us, I am sure."

A few flakes of snow were falling when the Lieutenant and his companion mounted their horses to leave the Indian village, and their host calling attention to the dark clouds overhanging the village, urged them not to set out until the threatened storm had passed. But the officer was anxious to escape from the annoying conditions in which he had become involved, and refused to listen to the urgent appeals of the Ute. He soon recognized, however, that it would have been wise to have accepted the invitation, however distasteful a further delay in the village might have been. He had scarcely gotten well out of sight of the place when the snow began to descend in great blinding sheets that quite prevented his further advance. The animals stubbornly refused to face the storm and turned obstinately in the direction from which they had come.

"There's no help for it, Lieutenant," said the trapper. "We must return to the village as quickly as possible, and accept the old redskin's hospitality once more."

"I had rather go on," replied the officer. "A bed in the snow would be preferable to a robe in the lodge of the Ute."

"A bed in the snow," said the trapper, "might mean a sleep that knows no waking. The storms in this region last often for days, and while the snow falls no hunting or traveling will be possible. There is only one thing for us to do," he said very emphatically, "and that is, to hasten back to the village as rapidly as possible."

"Go ahead then," said the Lieutenant, submissively. "I'm getting a taste of how an individual feels when he first discovers he is afflicted with some incurable disease. The affair," he added, desperately, "sticks as tenaciously as the nether garment Hercules wore, and is as annoying, I am sure."

The animals moved forward rapidly as soon as they were permitted to travel with the storm, and in a few minutes the party was once more comfortably housed in the lodge it had recently vacated in the village. Kishnawau hastened to meet them and welcome them back. He attempted to make himself particularly agreeable to the Lieutenant, and informed him that his wife would be delighted to learn that he had returned. After smoking a pipe of killikinick with his guests he took his departure, promising to return later in the day.

Contrary to the predictions of the trapper and the Indian, the snow ceased to fall soon after the party had dismounted at the lodge, but as the clouds continued threatening it was deemed prudent to remain in the village until they had passed.

The people of the hamlet were anxious to show their friendship for the white hunters who had visited them, but they were poor, and their means at the time were limited to their immediate wants. They might possibly have united in preparing a feast for them, but Kishnawan had already given them one of remarkable liberality and another was unnecessary. Their daily lives, as a rule, followed hard, plain lines, almost entirely destitute of enjoyments, and nothing of a public character to which they were accustomed remained to offer the white chief and his companion, except, possibly, the honor of a dance.

When this diversion was eventually decided upon the snow was swept from the space in the center of the village and when the night had come on, the place was brilliantly lighted by the blaze of resinous woods collected for the purpose. As soon as the blaze sprung up an old Indian warrior, almost covered from sight by an immense blanket that fell from his head to his feet, seated himself in the space and be-

gan to pound on a drum which had been manufactured from a section of unbroken bark, taken from a small birch tree, and covered at the ends with the tanned skin of a coyote.

The honored guests of the occasion were provided with seats on a robe placed on the ground near the fire, and Kishnawau seated himself close by, in order that he might explain what occurred, if the guests should desire to know.

"Your people seem well fed and happy," said the Lieutenant, as he sat waiting for the dance to begin. "I presume they never know what it is to be hungry."

"Not often'" replied his host. "The hunters usually bring much game to the village, and the people have plenty to eat. But sometimes in the winter, when heavy snows fall and the cold is severe, they find little to bring.

"At such times," he continued, "hunting is difficult and the warriors who go up in the mountains meet sometimes with strange adventures. It might please the white chief to hear of a strange thing that happened in the mountains not far away, many long years ago."

"I am sure I would be delighted," replied the Lieutenant.

Kishnawau twisted uneasily about on his seat for a moment, and nervously tucked the folds of the robe on which he sat, under his legs.

"A deep snow fell one day in the mountains," he began at last, "when Kishnawau's father was a boy, and a number of hunters who were out in the mountains were unable to return to the village. The weather was cold and the wood that lay on the ground, where the hunters had stopped was wet from the rain that had fallen before the snow began. The hunters succeeded after many trials in setting fire to a log, but it burned slowly, because of the water that had soaked into the wood from the rain. At last the fire burned fiercely and drove out the water in the log and sent it into the air in the form of a great wet cloud, like the mist that comes from the river on a summer morning. Suddenly, while the wet cloud was in the air, a cold wind struck it, and instantly froze it into a solid mass of ice."

The Indian paused for a moment and carefully scanned the features of his listeners as though he felt he had touched somewhat upon their credulity. Satisfied at last that his narrative was being received in good faith, he continued.

"After awhile the fire consumed all the log, but the great piece of ice that was once a wet cloud, still stuck in the air where it had frozen. On the following day the weather became warm again and the sun shone brightly on the cloud until at last it was loosened by the heat from its place in the air and fell with a great crash to the earth and

sunk deep in the ground, making a great hole from which the water of a spring finally burst forth and still continues to flow as the ice continues to melt."

When the Indian had completed his story the trapper burst into an apparently uncontrollable fit of laughter.

"Go up head, Kishnawau," he cried, "your genius as an originator of fictitious happenings is simply immense."

In one of his attempts at rhyming Bret Harte observes that:

"More laughter in the world would bring
The touch of nature nearer;
Good will would flourish 'neath its wing
And man to man be dearer."

But the Indian was evidently not in full accord, on this occasion at least, with the humorist's sentiment, and his manner clearly indicated that the "touch of nature" awakened by the mirth of his quest, had worked no "good will" between them. In the mind of the Ute the laughter of the hunter seemed simply a flagrant attempt to ridicule and possibly bring into question the truthfulness of the story he had just related to the Lieutenant, and turning upon him finally he glared at him threateningly.

"Oh, that's all right, Kishnawau," said the trapper. "Every word you uttered was simply truth itself. I was laughing at the way those unfortunate hunters must have been splashed by the snow and the mud when the iceberg fell.

"But, by the by, Kishnawau," he continued, "did you ever hear of the cold weather they have sometimes up in the British possessions?"

The Indian shook his head gravely.

(To be Concluded.)

STRATEGY AND TACTICS OF THE RUSSO-JAPANESE WAR.

TENTH PAPER.

(July 15—September 15, 1904).

THE CAMPAIGN IN MANCHURIA.

THE situation of the main armies in Manchuria on the 1st of July, 1904, was described in the *eighth* paper, and in the *ninth* the gradual retirement and concentration of Kouropatkin's army, and the advance of the Japanese forces were referred to.

General Oku had occupied Kaichon (or Kaiping) on July 9th, and the operations of his army were thereafter confined to the plains of the Liao River. General Kuroki, on July 6th, had occupied Tsian-chan (about 30 miles northeast of Saimatsi), east of Poliling Pass, thus turning the Russian left and compelling them to abandon some of the passes in the immediate vicinity. The Takuskan army was moving, at that time, on Haicheng.

Kouropatkin having been informed that important movements were taking place in rear of the I. army, he reinforced the III. Siberian Army Corps, under General Baron Keller, with the 9th Division (X. Army Corps), which had just arrived from Europe, and directed General Keller to make a forced reconnaissance toward Motienling Pass. This pass has an important strategic position on the main road to Liaoyang.

ATTACK ON MOTIENLING PASS.

On the night of July 16-17, General Keller attacked the Russian outposts with great vigor. The attack opened at 3 A. M. with infantry and artillery, and at 5 A. M. the Japanese outposts were forced back, the Russians deploying for an attack on the high ground west of the pass. The Japanese held their ground firmly, although the Russians made frequent attempts to turn the Japanese left. At 9 A. M., the Japanese having been reinforced by reserves near at hand, the Russians retired in the direction of Tienchuitshan (30 miles southeast of Liaoyang) and Dajuan or To-wan (30 miles east of Liaoyang), pursued by the Japanese. On the high ground between these two

points a portion of the Russians made a stand, covering Dajuan, or Ta-wan, between 2 and 4 P. M. The Japanese pursuit came to a stand at Yanseling Pass, but the pass itself they could not take.

The Russians lost about 1,000 men in this attack.

At the same time the other passes in the vicinity of the Motienling Pass, were attacked, but in smaller force. Two Russian battalions fell on the outposts in Sinkialing (or Sukuling) Pass (15 miles east of Motienling Pass), but were driven back by the Japanese at 1 P. M., the latter occupying the heights east of Makumenza, whence they opened heavy fire on the Russians retreating from Motienling Pass toward the Ta-wan. At Shankuling or Kankouling Pass (near Poliling Pass), a Russian force also attacked, but retired at the same time that the force at Motienling Pass retired, the Japanese pursuing for two or three miles to Shankauling Pass. At Simatang the attack was made at 8 A. M. and was not repelled till 4:30 P. M., when the Russians fell back to Hwangkiaputse. Sihkiaputse was attacked by a force advancing from Kiautan, but the attack was repelled at 1 P. M.

In this undertaking the Russians lost 1,900 men, the Japanese 43 killed and 256 wounded.

The attack failed principally because it was impossible to bring sufficient artillery into action on the difficult ground.

On July 18 and 19, the northern column of the I. Army advanced some 13 miles, and occupied, after some resistance Sihoyang (about 42 miles east of Liaoyang), where it effected communication with the adjacent column on its left through a small valley of a stream, a branch of the Taitsi-ho, which flows past Liaoyang.

The danger of these movements on the right of the Japanese line to the Russian troops still stationed at Tashichiao (railroad junction to Newchwang) and along the railroad, induced Kouropatkin to reinforce his line with the portions of the X. Army Corps then arriving, so that a complete Army Corps stood on each of the two principal northern roads along which the Japanese must advance toward Liaoyang; meanwhile, the Japanese right remained in position, sending out small parties to cover its flank towards the north, before which the Cossack Division, under Remenkampf, retired.

BATTLE OF TASHICHIAO.

At the same time, the II. Army, under General Oku, began advancing. It deployed in the direction of Dashitsao, or Tashichiao, the railroad junction to Newchwang, situated on the railroad about 20 miles southwest of Haicheng, an important strategical point.

On the heights at Tashichiao the IV. Siberian Army Corps had taken up a strong position.

On July 23d the Japanese began driving in the Russian outposts. The Russian front extended along the heights near Tashichiao, in an east and west direction for a distance of about 10 miles. The Japanese occupied a position along the heights about two miles southwest of the Russian main position, around Tapingling, the cavalry on the left.

The action opened with an artillery engagement lasting fifteen hours, in which the Russians held their own against superior numbers. At about 10 P. M. a detachment on the Japanese right succeeded in turning the Russian left around Tapingling, thus compelling the Russians to retire to Haicheng, after setting Tashichiao on fire.

Repeated attacks were made by the Japanese on the Russian center and here bayonet attacks were frequent and the opposing troops repeatedly engaged in hand-to-hand fighting.

The Japanese occupied Tashichiao on July 25th, their cavalry, which had been sent to the open ground on the left, taking possession of Yinkow (the port of Newchwang), which was at once repulsed as a landing place for transports.

The battle of Tashichiao cost the Japanese 12 officers and 136 men killed, 47 officers and 848 men wounded; while the Russians lost 37 officers and 894 men, killed and wounded.

The advance on Tashichiao was a part of a general advance on the left of the general Japanese line, with a view to concentrating on the Russian Army.

ENGAGEMENT AT PSHANLING PASS.

At the same time that the II. Army, under General Oku, was making its attack on Tashichiao, the Takushan Army, including the subdivision in Natseling Pass (about 20 miles southeast of Haicheng, and on the main road to the latter place) was again put in motion. The subdivision from Natseling Pass took Pshanling Pass in the main mountain ridge, and with the rest of the Takushan Army slowly advanced in the direction of Simutcheng, on the main road to Haicheng, about 10 miles southeast of the latter place.

This movement would in itself have forced the Russians to retire from Tashichiao.

BATTLES OF YUSHULINZA, YANGZULING PASS AND SIMUTCHANG.

On July 30th the entire Japanese Army advanced, and on the 31st attacked the Russian positions at Yushulinza* (on the main or most

*Called also Kushulinza, or Yushuling.

northerly road of advance against Liaoyang) about 25 miles southeast of the latter place. Yangzuling, or Yanseling, Pass* (on the road from Motienling Pass), and Simutcheng† (about 10 or 15 miles southeast of Haicheng.

Yushulinza, which is 4 miles beyond Shihoyen, a town on the slope of the hills on the main road to Liaoyang, marked the left of the Russian position. The Japanese attacked on the 31st, but were unable to take the position. On August 1st the attack was renewed, and the Russians were driven out and pursued for four miles. They retired toward Amping, half way between Shihoyen and Liaoyang.

In this engagement the Japanese lost 40 officers and 906 men. The Russians in this engagement and that at Yangzuling Pass, lost 290 officers, 1,500 men and 8 guns, besides 8 officers and 149 men prisoners.

Yangzuling Pass was also attacked on July 31st, but the Japanese were unable to take the principal positions, and bivouacked on the field during the night. On August 1st the attack was renewed, and at 8 A. M. the Russians were driven out and retired to Tahojuan (called also Tang-ho-yeng, or Tankoejuan), on the main road to Liaoyang, about 15 miles south of the latter place.

In this action the Japanese lost 8 officers and 286 men. The Russian losses in this engagement and at Yushulinza are given above.

General Count Keller, commanding the III. Siberian Army Corps, was among the killed.

At Simutcheng the Japanese attack commenced on July 30th, and lasted all through that day and the 31st. The Russians were strongly intrenched on the heights, and the fighting was very severe. The Japanese succeeded, however, in turning the Russian right, thus forcing them to retire to Haicheng, and thence to Aushanshan and Liaoyang. General Alexieff commanded the Russians at this point.

The Japanese lost 194 killed and 600 wounded; the Russians lost 29 officers and 1,000 men, killed and wounded, and the Japanese captured six guns and took 33 prisoners.

The weather was very warm, the thermometer registering 110 degrees Fahrenheit.

In these movements the Takushan Army and the II. Army, under General Oku, established communication with each other.

On August 3d the II. Army occupied Haicheng without opposition, and its cavalry brigade took possession of Newchwang.

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*Called also Kwan-sui-ten, or Lang tseling.

†Called also To-mu-cheng.

The I. Army, under General Kuroki, sent reconnaissance patrols and strong detachments northward over the Taitseho to secure its flanks.

GENERAL SITUATION, AUGUST 1ST, 1904.

The general situation of the two armies about August 1st was as follows:

The Russian Army extended practically along the railroad, on a front of about 50 miles, its right a little south of Anshantshan (about 22 miles southwest of Liaoyang), its left half way between Liaoyang and Mukden.

The various subdivisions were posted as follows:

The IV. and II. Siberian Army Corps on the right, occupying the ground between a point southwest of Anshantshan and Tankojuan (about 17 miles southeast of Liaoyang).

The III. Siberian Army Corps between Tankojuan and Anping (about 15 miles east of Liaoyang).

The X. Siberian Army Corps north of Anping and east of Liaoyang.

The I. Siberian Army Corps across the railroad, from the Taitsi-ho, southwest of Liaoyang, to a point about half way between Anshantshan and Tankojuan.

The XVII. Army Corps on the railroad north of Liaoyang.

The Cavalry Division of Remenkampf covering the extreme left, east of the railroad, about half way between Liaoyang and Mukden.

The rest of the cavalry west of Liaoyang.

The Japanese Army occupied an encircling position, extending over a front of miles, its right northeast of Anping, its left resting on the Liao-ho at Newchwang.

The various subdivisions were posted as follows:

The I. Army (Guard, 2d and 12th Divisions) on the right, covering the ground from the Taitsi-ho, 25 miles east of Liaoyang, southward to the main road to Liaoyang, about 30 miles southeast of that place.

The Takushan Army (10th and 5th Divisions) in the center, facing north, covering the ground north and northeast of Simutcheng (about 12 miles southeast of Haicheng).

The II. Army (6th, 3d and 4th Division) between Newchwang and Simutcheng.

The I. Cavalry on the extreme left, in the vicinity of Newchwang.

These positions were not materially changed before August 15th.

The armies on each side at that time were probably some 300,000 strong.

At Vladivostok the Russians had one-half of the 8th Division and probably the 1st Siberian Division; at Port Arthur the 4th and 7th Divisions.

The Japanese had at Port Arthur the 1st, 11th and 9th Divisions.

REINFORCEMENTS.

In Russia the V. and VI. Siebrian Army Corps of the military district of Kasan, were ordered mobilized, finally also the XIX. Army Corps.

The Army of Manchuria was also to be reinforced by 2 Cavalry Divisions (1 Orenburg and 1 Dan Cossack), 1 Cavalry Brigade (Caucassian Volunteers), 1 field mortar regiment of 4 batteries with 6-inch mortars, 1 East Siberia Siege Train, and a number of East Siberian Mountain Batteries, all of which were ordered mobilized.

Of the troops previously mobilized, the X. Army Corps had arrived complete at Liaoyang before the battles of July 31st, 1904; while the XVII. Army Corps reached that place about the early part of August.

These were to be followed in succession by the V., VI., and I. Army Corps.

The Siberian Railroad had required up to this time about 40 days to transport an army corps. Now its capacity was increased to 11 pairs of through trains daily. The road around Lake Baikal was completed about August 15th.

On July 6th the Siberian Landsturm (or last levy) was also called out, forming 4 brigades of about 6,000 men each, which were utilized to protect the railroad outside the sphere of operations.

In Sackalin (an island in the sea of Okutsk) the Landsturm had been previously called out, and was being trained for military service.

Japan ordered the organization of an expeditionary corps for Vladivostok.

The following *reserve* regiments were also ordered to be organized from the reservists:

52 Infantry Regiments of 3 battalions* each,
36 Cavalry Regiments of 3 squadrons† each,
24 Batteries of 8 guns each.

THE BATTLE OF LIAOYANG.‡

(August 30 to September 3, 1904.)

The concentric advance of the Japanese armies, under Marshal Oyama, on Liaoyang, was so far completed in the early part of August

*Each battalion 600 men. †Each squadron 150 men.

‡This account is mainly from *Marine Rundschau.* J. P. W.

that the different armies were in communication one with another, and a combined attack could be planned.

The advancing armies were therefore halted, and the attack was prepared. Reserves were placed in position, ammunition and other supplies were brought to the front, and the connection between the different armies was perfected.

During this interval the Russians improved their fortification to the south and west of Liaoyang, which had been preparing for months, and absorbed the main part of the V. Siberian Army Corps in the ranks of the army.

On August 5th a strong Japanese naval force, composed of gunboats and torpedo boats, proceeded up the Liao River to cover the Japanese left flank.

On August 23, the three Japanese armies formed an arc surrounding Liaoyang from the east to the southwest, at a distance of about 27 miles. The right wing was formed of Kuroki's army, somewhat loosely aggregated, stretching out northeastward, its right resting on the southern bank of the Taitse-ho. It was composed of the Guard, Second and Twelfth Divisions.

On the left of Kuroki's army stood Nodzu's army, composed of the Fifth and Tenth Divisions. It was in communication with Kuroki's army only by signal stations.

On the left wing General Oku's army, composed of the Fourth, Third and Sixth Divisions, was posted, its left resting on the railroad north of Haicheng. One brigade was pushed out in the plains of the Liao River, and the Cavalry Brigade was in rear of the extreme left beyond the railroad.

The Japanese army thus comprised eight Divisions with their reserve brigades, the First Cavalry Brigade, and 36 Batteries composing the two independent Artillery Brigades (besides the Batteries belonging to the Divisions). The total strength of the Japanese forces was about 200,000 men, with 550 guns.

The Russian outpost line extended in an arc along the chain of heights from Anshantshan on the railroad eastward and northward through Auping to the Taitse-ho, at a distance of about 10 miles from the Japanese main line, although the distance from the Japanese outposts was only about 3 or 4 miles.

Behind the Russian outpost line stood the I. Siberian Army Corps, east of Shaho* on the railroad (12 miles southwest of Liaoyang), the III. Siberian Army Corps (west of the main road from Fengwang-

*Or Shahopu.

cheng) and the X. European Army Corps (west of Auping), the three corps occupying the roads leading to a line of earthworks running from the railroad in a curve around to the Tietse-ho, at a distance of about four miles from Liaoyang, and closing the routes from the mountains to the plains.

These earthworks were armed mainly with field guns, but were otherwise practically semi-permanent fortifications. Their only drawback was that in some places in the southeast they were commanded by the surrounding heights.

In and about Liaoyang, which was surrounded by another inner line of earthworks on the southwest, south and east, the II. and IV. Siberian Army Corps and the mass of the Cavalry were posted in reserve.

On the right bank of the Taitse-ho stood the XVII. Army Corps and a Cossack Division, the former having detached a portion of its forces to the eastward. Under the protection of the XVII. Army Corps the recently arrived V. Siberian Army Corps was assembling.

The Tatise-ho was bridged by a number of pontoon bridges, besides the railroad bridges.

The Russian army at that time had a strength of about 180,000 men, and in field artillery it was inferior in number of guns to the Japanese.

Marshal Oyama's plan was evidently to hold the Russians on the south and southeast, at the same time making a turning movement with General Kuroki's army, with a view to cutting the Russians off from their line of retreat.

Between the 24th and the 29th of August the Japanese carried out their plan, first advancing from the south, then along the entire line, against the Russian first line, forcing the latter to retire to the principal or fortified position.

The Russian troops fought splendidly, and the Japanese took but few prisoners. Only one battery was taken, in the south of the line. A brigade, under Major General Rutkowski, attempted to retake it, but failed, its leader falling in the attack.

Nevertheless, the Japanese attained their object: General Kuroki succeeded in forcing back the Russian troops opposed to him, and in pushing out his Divisions to the north toward the Taitse-ho, and throwing two bridges over the stream. The Russian patrols and outposts did not discover these preparations.

Moreover, General Kuroki at this time was in communication with the main army only by telephone, which was not interrupted by the Russians.

On August 30th Marshal Oyama began the actual attack, and on the 30th and 31st the two southern armies repeatedly advanced against the Russian positions; the losses on both sides were very great. The Japanese left wing threatened constantly to outflank the Russian right, and in spite of the continued pressure at all points, General Kouropatkin saw himself forced to put in most of his reserves (the IV. Siberian Army Corps and the Seventy-first Division of the V. Army Corps) on his right, in order to extend his line there, which soon reached west of the railroad into the plain.

Meanwhile, on the eastern side, General Kuroki's army, leaving one Division (or less) to make a frontal attack on the Russian lines opposed to it, began under cover of this attack to cross the stream with the main body of this wing as early as August 30th, intrenching on the heights of the farther bank, after the weak forces of the Russians posted there had been driven away.

General Kouropatkin did not learn of this movement until the 31st, by which time it was already completed, and a portion of General Kuroki's army had begun to push northeastward in the direction of the chain of hills near the Yentai* mines (about 15 miles northeast of Liaoyang, at the terminus of a short branch railroad).

The situation on August 31st, was therefore as follows:

The Japanese had the Guards and Second Division across the Taitse-ho at a point about 20 miles east of Liaoyang, with subdivisions working their way toward Yentai; the Twelfth Division was still to the westward of Auping, covering the main road to Liaoyang at a point about 12 miles southeast of Liaoyang; the rest of the army in an arc extending westward and northwestward from the main road across the railroad at a distance of about ten miles from Liaoyang in the following order from right to left: Fifth, Tenth, Fourth, Third and Sixth Divisions, the extreme left of the Sixth Division resting on the road west of the railroad; the cavalry still farther west and in rear of the left flank.

The Russians had their main cavalry force on their extreme right, about nine miles directly west of Liaoyang; main line in an arc around Liaoyang at a distance of about six miles from that place, occupying the fortifications, extending from the road west of the railroad southeastward and eastward across the railroad and the main roads to Liaoyang to the Taitse-ho, in the following order from right to left: Seventy-first Division (V. Corps, west of the railroad), I., III., and X. Corps, with the IV. Corps in immediate reserve behind the I. and III.

*Called Fansheng on some maps, the junction on the main road being called Yentai or Jantai.

Corps; close around the western and southern part of Liaoyang the II. Corps was posted; about nine miles east of Liaoyang, north of the Taitsi-ho the XVII. Corps was stationed, with a part of the Cavalry; and farther north, near the railroad junction to Yentai, the Fifty-fourth Division (V. Corps).

General Kouropatkin, seeing his line of communications and his left flank threatened, decided to throw his main army against the troops under General Kuroki, leaving only sufficient forces on the south to hold in check the other two Japanese armies. But this movement rapidly took the form of a retreat.

On the night of August 31st, the Cavalry and the I. Corps crossed the river, followed on September 1st by the X. Corps, while the rest of the Russian army (Seventy-first Division and IV. Corps) withdrew to the inner lines around Liaoyang, and occupied the latter in conjunction with the II. Corps, which was already there.

The Japanese promptly occupied the other line of earthworks, but were too thoroughly exhausted to pursue. Their artillery, however, took up positions whence it could take the retiring Russians under fire, and did some damage to the railway transportation.

Meanwhile, General Kouropatkin had directed the XVII. Corps to hold the right bank of the river till the main body crossed, and sent the Fifty-fourth Division (V. Corps), which stood farther north, to occupy the hills, in the vicinity of the Yentai mines, which barred the way of the Japanese.

On the evening of September 1st, the rear guard of General Kuroki's forces succeeded in capturing the advanced position of the XVII. Corps on the hills of Sykuantun (or Sui-kwan-tun). But on the morning of September 2nd, this Corps, at considerable loss, however, retook the position. The Fifty-fourth Division had, in the meantime, occupied the hills assigned to it, and found the position so strong that the commanding officer, General Orloff, decided to send a part of his troops to assist the advance of the XVII. Corps. This detachment was met on its way by a portion of General Kuroki's forces, which had been sent out to intercept it, and forced to retire. The Japanese followed up this attack with such energy that the troops occupying the position on the hills were also carried along and fell back to the protection of the I. Corps, then advancing to the scene of action. General Orloff was wounded, and General Fomin was killed.

General Kuroki, as is readily seen, had put himself in a very dangerous position, separated as he was from his train and supplies, as well as from the main army. But by the capture of this position on the hills near Yentai he had redeemed the situation sufficiently to take

up a defensive position, in which he felt comparatively secure from the attacks of the exhausted Russian troops.

General Kouropatkin, therefore, ordered a retreat northward, which began on the evening of September 2nd, leaving a flank guard between Yentai and the Taitse-ho, to prevent any further advance on the part of General Kuroki. The troops of the latter were too much exhausted to pursue; the retreat, therefore, was effected without serious interruption or interference, partly by rail, partly by ordinary road; even the supplies in Liaoyang, in spite of constant bombardment of the railroad station, and the attacks of the armies of General Oku and Nodzu on the inner line of works, were nearly all removed.

On the night of September 3rd, General Kouropatkin vacated the positions, which were occupied, together with the town, by the Japanese, on the 4th. The Russians burned their pontoon bridges behind them, and had set fire to the railroad bridge, but the Japanese saved the latter and repaired it in a few days. No pursuit was attempted. On September 5th the Japanese occupied Yentai.

The losses of the Japanese (between August 24 and September 7) amounted to 17,539, of the Russians, 16,490. The Japanese losses included 136 officers killed and 464 officers wounded; the Russian losses, 516 officers killed and wounded. General Oku's army, on account of its repeated frontal attacks, suffered most. In General Nodzu's army one regiment, in its repeated attacks on the inner line of works at Liaoyang, lost about 1,300 men, most of the companies being ultimately commanded by non-commissioned officers.

The Russians retired toward Mukden. The Japanese gradually advanced their outposts to the Hainho (south of Mukden), and pushed out detachments to the eastward, occupying the Taling Pass (about twenty miles southeast of Mukden) on September 25th. General Oku sent a detachment westward toward Sinmingting (about thirty-five miles west of Mukden), the terminus of the railroad from Kinchon and Pekin. The main body of the Japanese army remained at Liaoyang and Yentai, and the former was organized as a base of operations for the winter campaign.

COMMENTS.

The tactics of this battle in general are simple and in the larger movements illustrate no new principles. The Russians had taken up a well-fortified, defensive position, covering Liaoyang. Against this position the Japanese advanced concentrically, until within striking distance, when the outflanking of the Russian *right* flank began, General Oku's energetic attacks on that side compelling the Russians to

put in a lage part of their reserves to prevent that flank from being turned.

This having been accomplished the real outflanking movement, namely that of the right flank of the Japanese line, began.

Although slightly superior to the Russians in point of numbers, Marshal Oyama had not sufficient strength to attempt to outflank them on both flanks at the same time, consequently he first forced the Russians to move their reserves toward their right flank, and then began to turn their left.

As early as August 30th, however, General Kuroki was only within signaling distance of the adjacent part of General Nodzu's army, and later on he became entirely separated. This was General Kouropatkin's opportunity to drive a wedge between the isolated Japanese right wing and the rest of the army. But it must be remembered that the Russian reserves were then on the extreme right of their line, and the country between General Kuroki and the rest of the Japanese army was very difficult. Nevertheless, the II Corps at Liaoyang, the XVII Corps and the cavalry on the Russian left flank were available for an advance up the Tanho toward Auping, a movement which would have cut off General Kuroki entirely from the rest of his army.

The Russian service of security and information, or its *reconnaissance* work, must have been defective, otherwise General Kouropatkin would have had earlier notice of the General Kuroki's flank movement.

The entire flank march is an excellent commentary on the great *mobility* of the Japanese troops. Without it the Japanese could not have succeeded so well in the mountains and difficult country they were compelled to traverse.

The battle illustrates the effect of pressure on the flanks and threatening the line of communication. But neither would have succeeded without the energetic attacks along the whole front, especially at the center. The effect of threatening the communication began to be evident immediately, since General Kouropatkin began to retreat as early as August 31st, when he gave up his strong line of earthworks south of Liaoyang, and the transportation of stores and troops by rail from Liaoyang commenced.

The opposing armies, although originally facing southeast and northwest, respectively, faced generally south and north, respectively, just before the battle, and since the railroad (the Russian line of communication) runs northeast from Liaoyang, the flank most readily reached by the Japanese (in spite of the difficult ground) was the Russian *left* flank. An attack on the Russian right would merely have

forced the Russians back on their line of communication. But as it was the Japanese did not reap the full benefit of their strategic advance, because the safety of General Kuroki required such strong efforts in the other portions of the line that the troops were too greatly exhausted to pursue properly after the battle was over.

Another reason for turning the Russian left flank, in preference to the right, was the fact that the Japanese are comparatively weak in cavalry, and the open ground on the Russian right would have favored the Russian cavalry.

These are the principal points in the general tactics of the battle. Now, with reference to the tactics of the separate arms, we find, in the first place, that *infantry tactics* must undergo some changes. The Japanese advanced in comparatively *dense* lines, sometimes almost shoulder to shoulder, and *bayonet charges* were frequent. These facts illustrate the danger of drawing conclusions from insufficient data. The South African war seemed to indicate that bayonet charges were relegated to the past, and the open order of attack had been established in the Franco-Prussian war. But this seems to be merely a matter of the "man behind gun" on either side. If one side has the courage to advance with the bayonet and the other side is brave enough to stand and receive it, close contact must take place. The armies must, therefore, be supplied with a substantial bayonet,—one that can put an enemy out of action promptly. As regards open or close order in attack, the object of the infantry attack is to defeat the enemy and drive him out of his position; it has long been a question among tacticians as to whether the open order formation could always bring the proper force of men up to the decisive range; if not, then a closer order must be resorted to, provided the men will stand the increased losses.

As regards *cavalry tactics* the war has thus far given the world little of real value. The famed Cossacks have added no new laurels to the deeds of that arm.

In *field artillery tactics*, however, some new lessons are taught. The *massing* of artillery on the battlefield was the great lesson of the War of 1870-71, but this principle must now be modified by another which long range, rapidity and accuracy of fire, and smokeless powder have necessitated, namely, the importance of *concealment*. The massing of artillery is still a correct principle, and superiority in number of guns still has its effect, but it must be combined with proper concealment, hence the guns cannot (as in 1870) be massed in a small exposed area, but must be scattered and concealed, and yet capable of concentrated *mass* fire, and *indirect fire* (which, by the way, was often

employed with splendid results in 1870-71). This assumes a greater significance. In all indirect fire, however, it is absolutely essential to have good *observation* of the effects of the fire, otherwise it is of no avail.

The importance of *training* in field artillery firing (that is, in target practice), is also illustrated in this battle, for the Russian gun was superior to the Japanese in range and in rapidity of fire, but the latter made up in its superior training what it lacked in material, and the Japanese guns were better massed.

The dispersion of the guns and indirect fire also make it important that greater attention must be paid to signaling in the artillery, not only to keep up communication between the parts of an artillery battalion, but also to convey the necessary information from the point of observation of the effects of the fire to a battery firing indirectly (at a target not visible from the battery).

These are the important lessons of this first great battle of the war, and it is seen that they are not entirely new, but have all been anticipated by the thinking and reasoning spirits in the world's armies.

*A STUDY OF ATTACKS UPON FORTIFIED HARBORS.**

THE CAPTURE OF WEI-HAI-WEI AND THE CHINESE FLEET IN THE JAPANESE WAR IN 1895.

A SUCCESSFUL COMBINED ATTACK UNDER MODERN CONDITIONS.

THE Japanese having conquered Korea and seized an advanced base for the navy at Port Arthur while the army was supplied from several ports along the coast of Korea, and an additional march upon Pekin being contemplated, it was impossible to permit the Chinese fleet, based upon the fortified port of Wei-hai-wei, to threaten the oversea communications between Japan and the Gulf of Pechile.

It was decided to support the effort of the Japanese fleet against the Chinese by sending a force of 25,000 troops with 12 field guns, 36 light mountain guns, and 12 mortars, to operate against Wei-hai-wei. This force sailed from Talienwan in three divisions on the 19th, 20th and 22d of January, 1895. On the 18th and 19th three Japanese cruisers bombarded Tungchow, 75 miles west of Wei-hai-wei to create a diversion. The first transport fleet was accompanied by the "main" and second squadrons of the naval fleet (8 ships) and landed at Yung Chung Bay on the northeast extremity of Shantung after a day's passage.

The harbor here is a very good one in winter weather. The landing was opposed by 300 Chinese with 4 guns, but they were dispersed by a few shots from one of the men-of-war, and the landing was complete on the 24th.

During this period of disembarkation the transports were guarded by a division of gunboats while the heavy ships remained at sea, with a division close up against Wei-hai-wei which was reenforced each night by 10 torpedo boats.

The general advance to Wei-hai-wei, about 35 miles off, was begun on the 26th with the army in two columns, one marching by the coast road and one by the parallel road 4 miles inland. On the 28th the main body was only 6 or 8 miles from Wei-hai-wei

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and steps were taken to reconnoitre. The heads of columns were at Pao-chia and Chung-chia-kou-tzu, respectively.

The defenses of Wei-hai-wei fall naturally into three groups, those on the islands of Jih and Liu-kung, those on the main land at the northwestern entrance, and those on the mainland at the southeasern entrance. A few small works also commanded the road to Chefu.

ARMAMENT.

Tiao-peh-tsu	3	24-cm.	9.4-inch.
Eastern end harbor...	2	28-cm.	11.2-inch.
Lu-chueh-tsu	4	24-cm.	9.4-inch.
Lu-chueh-tsu	2	21-cm.	8.3-inch.
Lung-miao-tsu	2	15-cm.	5.9-inch.
	13		

Four forts on the land side mounted to protect above:

No. 1.	Hsieh-chia-so	4	15-cm.	5.9-inch.
No. 2.	Yang-feng-ling	2	12-cm.Q.F.	4.7-inch.
No. 3	Mo-tien-ling	4	12-cm.Q.F.	4.7-inch.
No. 4.	Earth-work	2	12-cm.Q.F.	4.7-inch.
		12		

On Jih Island:

2	26-cm.	10.3-inch.	? were disappearing.
2	12-cm.Q.F.	4.7-inch.	
4			

On Liu-Kung:

Eastern end.....	2	24-cm.	9.4-inch.
Western	6	24-cm.	9.4-inch.
	8		

There were also disappearing guns.

On northern shore near west entrance:

3 forts (numbered coming from sea):

1st	6	24-cm.	9.4-inch.
2d	2	21-cm.	8.3-inch.
3d	2	15-cm.	5.9-inch.
	2	21-cm.	8.3-inch.
	12		

Back of these forts for protection against land attack there were two forts:

1st	2	15-cm.	5.9-inch.
	2	12-cm.Q.F.	4.7-inch.
2d	2	12-cm.Q.F.	4.7-inch.
	2	15-cm.	5.9-inch.
	8		

Total of sea-coast guns:

2	11.2-inch.	4	5.9-inch.
2	10.3-inch.	2	4.7-inch.
21	9.4-inch.	—	
6	8.3-inch.	37	

The booms consisted of steel hawsers 3 inches in diameter, 3 yards apart, floated on large timbers about 9 meters apart.

The garrison included 1,500 men on the islands, 3,000 in the eastern forts and 3,000 in the western forts. The coast forts were all armed with modern heavy B. L. R. guns.

The Chinese fleet inside the harbor consisted of 2 battleships, 5 cruisers, 1 sloop, 7 gunboats, and 11 torpedo boats, manned by 4,000 bluejackets. The entrances were obstructed by mine fields and booms.

On the mainland at the eastern entrance there were five coast forts, two of which commanded Three Peak Bay. A line of parapet ran along to the west from Yang-feng-ling, and at its most commanding point was a small fort named Mo-tien-ling, armed with field guns; another smaller one was situated a little to its left.

The high peak 3 miles south of Yang-feng-ling commanded a view of the entire locality, and at its foot a small stream ran into Three Peak Bay. This stream was frozen.

On January 29, the Japanese drove in the enemy's line on the southeast, and the right column established its outpost line from Three Peak Bay to the high peak, while the left column kept abreast of it.

On January 30, at daylight a general attack began. The left column with very little difficulty carried the ridges between it and the harbor in less than three hours, and then a battalion pursued the Chinese along the beach to the west until it came under the fire of some Chinese gunboats.

The right column moved against the key position of Mo-tien-ling, which fell in less than two hours without having inflicted

much loss on the Japanese in spite of the supporting and enfilading fire from Yang-feng-ling. Shortly after, the other small fort was carried; so that the Japanese now held all the land defenses on the eastern end and soon took Lung-miao-tsu and turned its guns against the Chinese fleet and island forts. Hereupon the Chinese battleship Ting Yuen, which, with the Chinese gunboats, had held back the Japanese infantry, steamed up to the fort and silenced it in half an hour.

As the army started its movement 6 ships of the Japanese light division steamed into Three Peak Bay and opened a long-range fire on the two eastern forts which lasted till nearly noon.

The Japanese troops on the crest above these forts now experienced a heavy fire from them (the forts) as well as from the Chinese fleet, but the Japanese held a very commanding position and replied by a heavy fire from their mountain batteries and from the captured field guns at Mo-tien-ling.

Shortly after noon, Yang-feng-ling caught fire and was abandoned, and Hsieh-chia-so was immediately evacuated; five minutes later an explosion in Tiao-peh-tsu caused its garrison to withdraw. All these retreating troups suffered heavily as they ran along the shore to the town.

The Chinese admiral now landed a party of bluejackets who made a bold attempt to destroy the guns in the remaining two forts, but they were too late, and before 1 p. m. the Japanese occupied them. The Japanese had brought bluejackets from Talienwan with the army for the express purpose of manning the captured forts, so they were able in half an hour to open fire on Jih with three out of the four 9.4-inch guns in Lu-chueh. This drew the attention of the Chinese forts and ships, which concentrated on Lu-chueh and disabled two of the guns; the other did not cease fire till 4 P. M., when the Chinese ceased also.

This ended the day's fighting. All the eastern forts were carried by the Japanese, who then controled one end of the eastern boom and the submarine mines there. One Japanese division spent the night about the captured eastern forts and the other remained south of the southern part of the harbor. This night the Japanese admiral attempted to send the torpedo boats inside the harbor, but in his haste he neglected to warn the army, and the boats were driven back by their own troops.

On January 31, preparations were made for future operations; particular efforts were directed to putting the guns of the captured

seacoast forts in condition for use. A projected torpedo boat attack was abandoned on account of a gale with snow.

On February 1, the left column moved towards Wei-hai-wei by a long sweep over the hills in a heavy snowstorm, the direct road along the coast being covered by the Chinese fleet. The weather was so bad that with the exception of a single squadron the blockading fleet withdrew to Yung-Cheng Bay.

On February 2, the left column took unopposed possession of the western forts, whose guns had been disabled by a party of Chinese sailors sent for the purpose by their admiral when he saw the soldiers deserting.

The work now remaining for the Japanese forces was the reduction of the island forts and the capture or destruction of the Chinese ships by means of the navy, aided by the captured forts.

The 3d of February was fine and both sides carried on a heavy fire; the Japanese fleet and the eastern forts bombarded the eastern works on Liu-kung. The forts continued to fire on each other during the night. At night the torpedo boats attempted to cut and remove a part of the boom, but failed, although they found a narrow and difficult passage between the end of the boom and the mainland.

On the night of the 4th a section of the boom 100 yards long was removed, and at 3 A. M. on the 5th, after the moon had set, 10 torpedo boats organized in two flotillas started into the harbor, but only 8 got by the obstructions; the others got ashore. Only 4 boats actually attacked, firing 8 torpedoes; of the others, one had her tubes frozen up, and the others were injured themselves or turned aside to aid the cripples. The first flotilla to pass in moved to the western shore before attacking, but the second had lost so much time at the boom that it moved straight on the Chinese ships before Liu-kung, where a gunboat and torpedo boat lay in front as pickets. The Ting Yuen, battleship, was sunk in shallow water by a torpedo, while the Japanese lost one boat and two others were so badly damaged as to be sent to Port Arthur for repairs.

On the following night the first flotilla of 5 torpedo boats was sent into the harbor at 4 A. M., while the other two flotillas made a demonstration at the western entrance. The attacking flotilla ran to the west side of the harbor and then attacked the fleet as on the previous night, firing 7 torpedoes and then retired, having suffered no damage. In the morning 2 Chinese gunboats and a small transport were found to be sunk.

On the 7th, the Japanese fleet, at long range, and the captured forts opened a general bombardment and the fort on Jih was silenced by those south of it. During the bombardment 11 Chinese torpedo boats left the harbor by the west entrance and ran for Chefu. All were captured or destroyed by the first flying squadron.

The absence of this Chinese flotilla enabled the Japanese to place twelve 9-cm. mortars near one of the western forts so as to bring an artillery fire on the west end of Liu-kung and on the Chinese fleet. By their R. F. and machine gun-fire the Chinese boats had prevented all movements of the Japanese troops about the western forts.

On the nights of February 8-9 and 9-10 two sections of the boom were destroyed.

On February 11 there was another bombardment and on the of the eastern forts sunk a Chinese cruiser while the new mortar battery on the western mainland silenced the western fort on Liu-kung.

On February 11 there was another bombardment and on the 12th the Chinese offered to surrender. Negotiations followed and the surrender was completed on the 16th.

The losses of the Chinese on Liu-kung were not very heavy and should not have brought about a surrender.

The bombardments by the Japanese fleet were intended merely to draw off some of the Chinese fire from the eastern forts, and the ships, therefore, kept at long range—4,000 to 6,000 yards. They lost 8 killed and 34 wounded in all.

The campaign of Wei-hai-wei had a purely naval objective, the destruction of the Chinese fleet; nevertheless, as in previous campaigns, so here, we see the army taking a principal part, although the territory about Wei-hai-wei was of no importance to the general plan of invasion.

But here we see for the first time that the heavy ships of the navy wisely decline to seek a close fight and confine themselves to a long-range and consequently ineffective cannonade.

The auxiliary craft, the torpedo boats, on the contrary are very prominent and take a decisive part in the destruction of the Chinese fleet, which is the sole objective. But this action of the torpedo boats was possible only through the previous success of the army in occupying Tiao-peh-tsu, and the southern mine field firing station. Thus the attacking army's action disabled the mine fields. On the other side the great support which the Chinese ships lent the defending troops is very remarkable, and the oppo-

sition offered by the torpedo boats to the western Japanese troops is even surprising.

SANTIAGO.

The campaign against Santiago is a very instructive one as to the attack of fortified harbors. As it was so recent, what was done there is well known to all, and I shall merely offer some observations on the plan of campaign.

The declaration of war was made for the object of delivering Cuba from Spanish occupation, and Cuba was necessarily the principal theater of operations. The Spanish army of occupation could be brought to terms either by starving it into surrender by a blockade of the island, which was already devastated and disordered, or a field army could be thrown into the island to attack the Spaniards.

The first plan was not seriously considered, not only because the United States navy was not thought strong enough to surround the island with a close blockade, but also because the inhabitants of the island would suffer with the Spaniards.

The second plan was favorably viewed and the administration wished to put 70,000 men ashore in Cuba near Havana to oppose the Spanish army in the western part of the island, and it was expected that the operations of this army would be the principal feature of the war. As such an army did not exist at the outbreak of the war, it was necessary to recruit and organize it.

Success, however, would be almost sure to fall to that one of the two combatants who should preserve his communications with home. As Cuba is an island and the sea is the only means of communication, it was impossible for the United States to think of launching an army against the principal Spanish position about Havana until a decisive naval battle should enable the army to embark without any anxiety for the subsequent security of communications.

Accordingly the news of the departure of Cervera's squadron for the West Indies was welcome to the administration, as it hastened the solution of the problem by bringing the Spanish fleet, an essential factor in the situation, within the theater of operations.

When reports reached Washington that Cervera had entered Santiago de Cuba it was the immediate wish of the Navy Department to verify the news, and then retain him under observation until a sufficient force could be assembled to destroy him. Although the defenses of Santiago were far from strong, yet the

guns and mines offered proper support to each other, besides having the Spanish fleet in reserve, so that were the navy to attempt to force its way in alone it would very possibly lose a ship or two. In the threatened conditions of the relations of the United States with continental Europe it was impossible for the administration to contemplate with equanimity even the smallest reduction in our naval force, and imperative orders were sent to Admiral Sampson not to take undue risks against forts.

For these reasons it was arranged by the War and Navy Departments, at the suggestion of the latter, that as soon as the navy should blockade the Spanish fleet, a sufficient force of troops should be sent to aid the navy in opening the harbor preliminary to attacking the Spanish fleet.

On the 27th of May the Navy Department informed the War Department that it expected soon to be able to call for the army to move. On May 29, a sufficient force arrived before Santiago to make the blockade effective, and the same day it verified the presence of the Spanish fleet within, and reported the facts to Washington by cable from Hayti. On May 31, General Shafter was directed to move his army corps to Santiago in the following terms:

". . . You are directed to take your command on transports, proceed under convoy of the navy to the vicinity of Santiago de Cuba, land your force at such place east or west of that point as your judgment may dictate, under the protection of the navy, and move it on to the high ground and bluffs overlooking the harbor or into the interior, as shall best enable you to capture or destroy the garrison there; and cover the navy as it sends its men in small boats to remove torpedoes, or with the aid of the navy capture or destroy the Spanish fleet now reported to be in Santiago. . . . You will cooperate most earnestly with the naval forces in every way, agreeing beforehand upon a code of signals. Communicate your instructions to Admiral Sampson and Commodore Schley."

If each clause in the first and principal sentence of this order is duly weighed it becomes apparent that it was the intention of the War Department to prescribe a movement for the capture of the garrisons of the harbor forts, for the purpose, as the order explains, of covering the navy in its work of clearing the channel by its small boats. As an omnibus clause, indicating the scope of the entire campaign, the sentence concludes with the general direction, "with the aid of the navy, capture or destroy the Spanish fleet." Unfortunately there exists a verbal ambiguity in the

construction of the sentence (very possibly due to a desire to facilitate the enciphering) and this ambiguity, if the clause referring to covering the small boats of the navy be not fully appreciated, might allow the recipient to regard as his objective the garrison of Santiago.

It is thus seen that the administration was not contemplating the expedition to Santiago as a substitute for the great military enterprise against Havana which it had debated a month earlier. It was not even a diversion in favor of the Havana campaign. On the contrary, the expedition to Santiago was intended as and ex-expected to be solely an auxiliary to the naval campaign which was seen to be a necessary preliminary to any field operations against Havana.

How correctly the administration viewed the situation, as one governed by the question of sea-communication, is apparent when we recollect that the report of a Spanish squadron on the north coast delayed the departure of the expedition until it was shown to be unfounded. Nevertheless the administration did not look as deeply into the question of Spanish communications as did Admiral Sampson, who telegraphed to Washington on June 26 that in his belief success at Santiago would terminate the war.

On June 1, the arrival of Admiral Sampson at Santiago made the blockade an effective one. At this time a reserve squadron was fitting out in Spain and news of its completion was daily expected. Owing to its central position with regard to the two theatres of war in the West Indies and the Philippines, it had a free choice of its field of operations, and at Washington it was believed to be sufficiently strong to turn the balance of strength in either field.

As General Shafter's force was delayed at Tampa for lack of transportation, so that Cervera was temporarily secure from attack, the Navy Department became very anxious to contain his force in order that Admiral Sampson might detach against the Spanish reserve squadron. The collier Merrimac was therefore sent into the channel and sunk there on the night of June 3, in order to prevent the egress of Cevera's squadron. On June 6, the forts at the harbor mouth were bombarded and silenced by the fleet, but suffered and inflicted no material damage. Although the forts were thus shown to be unable to oppose the fleet, the topography of the entrance was such that the heavy ships could not cover and protect the small craft from infantry fire should they be sent to clear the channel of mines and obstructions. In

reporting the affair Admiral Sampson urged the immediate despatch of the troops, and still erroneously believing that the Merrimac closed the channel, he suggested that delay in the arrival of the army would give the Spaniards an opportunity of removing the ships' guns to add to the land defenses, and stated that 48 hours after the arrival of the troops the city and fleet would be captured.

On June 10, the lower part of Guantanamo Bay was occupied by the fleet as a base for carrying on the blockade of Santiago and a battalion of marines was landed to secure the ships from annoyance by the enemy on shore.

On June 16, the forts at Santiago were bombarded again and readily silenced. On June 20 the army arrived off Santiago and after consultation between General Shafter, Admiral Sampson and the commander of the Cuban irregular troops, it was agreed that the army, assisted by navy boats, should land about 18 miles east of the harbor and march to attack the forts at the harbor mouth entrance, and that, to facilitate the landing, feints should be made both east and west of the entrance and that the navy should shell the landing place in order to drive away any possible opposition. The 21st was occupied in arranging details and issuing necessary orders. On the 22d the disembarkation began. On this day General Shafter wrote to Admiral Sampson saying he would advance on Santiago as soon as he could and requested Admiral Sampson "to keep in touch during the advance and be prepared to receive any message I may wish to transmit from along the bluff or any of the small towns and to render any assistance necessary," thus showing his intention of attacking the harbor forts. About 6,000 men were landed on the 22d and a strong force was sent to the west, and seized a second landing place about 8 miles down the beach, where troops and stores were landed on the 23d. About 6,000 more troops were landed this day and all the troops, 16,000, were on shore on the 24th, but it was very difficult to establish a reserve of stores, as landing on an opeu beach is not easy. The orders for the 24th of June contemplated the retention of a position near the landing place until a sufficient reserve of stores had been accumulated on the beach; but General Shafter's headquarters remaining on board ship, the senior officer present, upon his own responsibility, directed an advance upon the rear of Santiago, and committed the army to a plan of operations which the commanding general had not thought of.* Not only did this movement forsake

*See General Miles' testimony.

the key of the military position and throw away naval co-operation, but it entailed great difficulties in supply owing to the expedition's lack of transport and the bad roads—difficulties which would have been avoided had the army remained near the beach.

Under these circumstances the navy could do no more than maintain a close blockade and see that during operations thus prolonged the army should not suffer by having its store ships driven away.

On June 28, General Shafter learned of the advance of Spanish re-enforcements marching from the west, and on June 29 he moved his headquarters on shore and arrived at the front the following day. On June 30, General Shafter notified Admiral Sampson that he would attack the city the next day and that he would make a demonstration with a regiment against Aguadores, three miles east of the Morro, and requested the admiral to support this demonstration in order to divert the defense before the city. Here we see that the movement along the beach upon the harbor forts, which the administration had contemplated as the principal one in front of Santiago, was reduced to the role of a simple demonstration, and that the major and minor operations had exchanged parts in the mind of the commanding general. The navy carried out its share in this demonstration as requested on July 1, and on the following day also, but although the ships present repeatedly assured the co-operating brigade that an advance would find the enemy's position abandoned, yet no movement was made to take possession and a very promising opportunity was completely lost. On July 1 the American troops made a general attack on the outer works of the Spanish position outside of the city, which was unsuccessful, and was continued the next day, so that by the 3d of July the investment was complete on the north and east sides of the city. Nevertheless, in spite of his success the general informed Washington that he thought of falling back from the position he had just won owing to difficulties in supplying his troops from Siboney.

On July 2 a very curious correspondence occurred between Shafter and Sampson. Shafter first telegraphed to Sampson:

"July 2. Terrible fight yesterday, but my line is now strongly entrenched about three-quarters of a mile from town. I urge you to make effort immediately to force the entrance to avoid future losses among my men, which are already very heavy. You can operate with less loss of life than I can. Please telephone answer.

W. R. Shafter, Major-General."

The following reply was telephoned by Admiral Sampson's flag lieutenant:

"Admiral Sampson has this morning bombarded forts at entrance of Santiago and also Punta Gorda battery inside. Do you wish further firing on his part. . . . . Impossible to force entrance until we can clear channel of mines, a work of some time after forts are taken possession of by your troops. Nothing in this direction accomplished yesterday by the advance on Aguadores."

Shafter replied as follows:

"It is impossible for me to say when I can take batteries at entrance to harbor. If they are as difficult to take as those we have been pitted against, it will be some time and a great loss of life. I am at a loss to see why the navy cannot work under a destructive fire as well as the army. My loss yesterday was over 500 men. By all means keep up fire on everything in sight of you until demolished. I expect, however, in time, and sufficient men, to capture the forts along the bay. SHAFTER."

To this Admiral Sampson replied in a letter from which the following extract is made:

"Our trouble from the first has been that the channel to the harbor is well strewn with observation mines, which would certainly result in the sinking of one or more ships if we attempted to enter the harbor; and by the sinking of a ship the object of the attempt to enter the harbor would be defeated by the preventing of further progress on our part. It was my hope that an attack on your part of these shore batteries would leave us at liberty to drag the channel for torpedoes. If it is your earnest desire that we should force our entrance I will at once prepare to undertake it. I think, however, that our position and yours would be made difficult if, as is possible, we fail in our attempt. We have in our outfit at Guantanamo 40 countermining mines which I will bring here with as little delay as possible, and if we can succeed in freeing the entrance of mines by their use, I will enter the harbor. This work, which is unfamiliar to us, will require considerable time. It is not so much the loss of men as it is the loss of ships which has until now deterred me from making a direct attack upon the ships within the port. W. S. SAMPSON."

Thus we see that the commanding general, having allowed the act of a subordinate, contrary to positive orders, to commit the army to a difficult line of operation, ill-suited to the early attainment of the object of the campaign, and having met with more difficulties in his operations than he had previously expected, and foreseeing others to

come, then called upon the navy to save him from the consequences of his act by doing the very thing to prevent which the army had been sent out. General Shafter shows that he regarded the problem before him and the admiral as simply a question as to whether the additional loss of life necessary to complete the campaign should be made to fall upon the army or the navy, and as the army had lost 500 men, he intimated it was now the turn of the navy to suffer an equal loss before the army should be expected again to exert itself. Really the situation was very different. Every commander-in-chief afloat or ashore must consider the political situation of the country as controlling the military action, and in modern times the telegraph to headquarters nearly always confers the means of executing this duty in a way satisfactory to the administration. In the present case it was a matter of notoriety that continental Europe was unfriendly towards the United States, and the administration feared that the loss of a single United States battleship without corresponding loss to the Spanish fleet might serve to crystallize a coalition against the United States which would be more disastrous than any loss of life, either in army or navy, which reasonably could be expected in front of Santiago. Moreover, should the United States lose a ship in the channel while forcing its way in, the channel might be obstructed so that the fleet would be divided into two parts, the one inside too weak to cope with Cervera's force and the other unequal to the Spanish reserve squadron. In this case the transport fleet of the United States army would be very vulnerable and an attack on it would cause the force in front of Santiago to starve, as the reserve of supplies on shore was too small.

A personal interview was arranged between the two commanders-in-chief to reconcile their views, but before it could take place the Spanish fleet came out and was destroyed on July 3. On the same day the Spanish re-enforcing column entered Santiago. On July 4, General Shafter sent word to the city of the loss of the fleet and demanded its surrender. On the same day he renewed his request to the admiral to have ships force the entrance and sent the same request to Washington, asking for 15,000 troops additional in case the navy should not enter. He failed to see that, although the capture of the city and garrison was now the sole object of continuing the campaign, owing to the elimination of the Spanish fleet, yet this did not effect the military situation at Santiago, whose key remained as before on the hills at the harbor mouth. Not only had sickness made its appearance in the army, but the bad season was approaching and passing supplies over a surf-beaten beach was a task of difficulty. Even then, had the detachment at Aguadores been sent against the harbor forts,

supported by the fleet, the clearing of the channel would have enabled the naval guns to complete the investment of the city to the west, would have brought the garrison under the heavy guns of the fleet and would have transferred the base from the uncertainties and difficulties of an open sea beach to the security of a fine harbor, besides avoiding most of the difficulties of forwarding supplies from the base.

The general telegraphed to Washington on July 5: "The only safe and speedy way is through the bay; am now in position to do my part." He had forgotten what he had acknowledged to Admiral Sampson before landing, that the key of the situation was the harbor forts. The President ordered a conference between the admiral and general, to agree upon a joint plan, and on July 6 they decided that three days' truce should be given to the Spaniards to consider surrender, after which the navy should bombard the city from the sea. Should this prove indecisive, the navy would send one thousand marines with some Cubans to assault the Socapa batteries, after which some of the smaller ships of the squadron would try to enter (after countermining). That is to say, it was now agreed that the navy should undertake the land assaults upon the forts, while the army was to retain the Spanish forces within the city.

Fire had ceased on July 4 and negotiations for surrender continued until the afternoon of the 10th, when the artillery of both sides opened and the ships outside added a long-range fire against the city. On July 11, the bombardment was renewed afloat and ashore and the investment of the city was made continuous. In the afternoon fire ceased for the last time. Negotiations for surrender was resumed until the 16th, when the surrender was completed to include all Spanish troops in the eastern extremity of the island.

This wide-reaching surrender was the direct result of the destruction of the Spanish fleet; for the controlling element in the military situation in the opposing lines, and indeed throughout the province, was the question of communications and supplies. The blockade was starving the Spanish army and after the Spanish fleet was destroyed there was no hope of raising the blockade, so Santiago was ready to surrender. In fact, the Spanish government soon preceived its inability to hold the rest of Cuba and grasped the lesson sooner than did our own, although Sampson had early perceived that success at Santiago probably would terminate the war.

The movement on Porto Rico was another blow at Havana, as it deprived Cuba of a necessary intermediate base on the route to Spain, but the destruction of the Spanish fleet so completely interrupted communications that the attack on Porto Rico did not hasten the

conclusion of peace, but merely served to throw that island into United States possession when the peace was signed.

It is interesting to compare this campaign with those against Cartagena and note how unvarying is the character of the Spanish defense through three centuries. In each case the garrison fired and fell back as long as it could, sacrificing every outpost and everything it could take with it, and finally, when in the last ditch, it fought and died bravely, to save personal honor, without ever having made an attack, or shown a wish to make the enemy die with it or before it.

The instructive points about this campaign are:

1. A system of fortification, weak but properly combined with a mine defense believed by the attacking force to be fairly efficient was enough to prevent a naval passage.

2. The necessity that the principal officers in joint operations shall have a very clear comprehension of each other's requirements and capabailities and each thereafter do his part.

In the present case the army was sent to act as an auxiliary to the navy in a naval campaign. The commanding general overlooked this to such an extent that he thought the military operations were the principal ones and called on the navy to sacrifice itself and risk the success of the campaign to further his own immediate object. Had the forts at the harbor mouth been taken on June 24 or 25, as probably they might have been, and the Spanish fleet destroyed a day or two later, it is probable that the Spanish garrison of Santiago would have marched into the interior, and the loss of life before Santiago would have been avoided. In this case the Porto Rican campaign would have been the conclusive one and the war would have ended no later than it actually did.

The resemblance between this campaign and that of Wei-hai-wei is both striking and instructive. In both cases the principal movement of the army of the invading nation was suspended until its sea communications should be assured through the destruction of the hostile fleet. In both cases, likewise, the more active part of this operation, naval in its scope, fell to the share of a large detachment of the army operating eccentrically in a region outside of its own special theater, while the supporting navy had only a secondary part. But in the Japanese campaign the leaders of the army and navy better understood what should be their mutual relations and executed their respective parts with more harmony than was the case of the United States.

Conclusions as to the Attack of Fortified Harbors.

drawn from the preceding accounts of typical campaigns.

The campaigns which have been described have been selected as representatives of operations against sea ports. Let us now see if we can perceive a general reason which explains why each place was selected as a point of attack.

It is evident that in every case mentioned the attack on the harbor was made with the object of affecting a chain of water communications, either military or civil. Sometimes the attack was for the object of improving or securing the attacker's lines of water routes, sometimes it was to injure the enemy's lines. Sometimes the port was an ocean port, sometimes one on interior waters; but in each case the attempt to capture a harbor was dictated by some relation it had to lines of water communication.

Even when the objective was a hostile fleet behind the fortifications the reason for the attack still was to secure one's own communications by destroying the enemy's fleet. If we sketch out a probable course of the campaign in a suppositious war, the harbors which will become a part of the necessary lines of communications for that campaign will be clearly apparent, and the degree of preparation and defense proper for each one will depend upon its relative importance to the operations of the war.

To be sure, raiding and wanton destruction of fortifications and the property near them is always possible, but it is becoming more unlikely every year; not so much on account of the prevalence of humanitarian views, nor of the increasing limitations upon belligerent rigths, but because the improvements in the transmission of news and in transportation of every sort makes it unwise to scatter the combatant forces in minor operations. Great defensive works are needed only by those ports which are essential as bases of operations, whether commercial or combatant.

It appears from the examples we have considered of attacks upon fortified harbors that such may take place either by the navy alone or in conjunction with an army. In both cases the operations may inclue a period of slow approach and preparation on the part of the navy analogous to a military siege, or they may consist only of a sudden attack analogous to a military assault.

In this country the success of Farragut's principal actions and their important consequences have much misled unreflecting opinion; and the fact that his assaults were followed by a passage to the other side of the defenses, has led most persons in this country to think

that "forcing the passage," as it is called, is the normal form of naval attack upon a fortified harbor. If we think of the operations before Charleston, we must recognize that when Dupont made his assault he did not think of forcing the passage; and, later Dahlgren, who relieved him, drew up a memoir justifying himself for not running in. From a comparison of the situations in the Gulf with that at Charleston, it seems clear that Farragut ran inside because by doing so he, in co-operation with the army, completely invested the enemy's position and cut all his lines of supply, while maintaining his own communications intact. At Charleston, on the other hand, a passage of the forts by the navy would have been profitless unless the army had made a simultaneous successful attack on Fort Johnson, for the forts would have kept their own communication while the ships would have been cut off.

Thus we see that "forcing a passage" is not justifiable unless the fleet gain a positive advantage with regard to the enemy without sacrifice of its own lines of communication. These conditions will rarely occur, although they are associated with the most brilliant achievements of our navy.

Having thus glanced at some of the principal conditions which determine the propriety of attack, we must now take up the question of methods to be followed. Let us try to decide what features are fixed and what are variable in the plans and operations we have considered.

The methods of attack are necessarily governed by the means of defense. Not only during the period of three hundred years from which we have drawn our examples, but farther back in history, as far back as the siege of Tyre by Alexander, we may see that there have always been two ways of defending a harbor from a naval attack. The defense may resist by striving either to destroy the lives of the attacking forces, or to delay and injure the ships that carry them. It does not seem that there can be a third way. It has always been feasible for a sufficiently powerful attack to deal successfully with either mode of resistance, and therefore in every age a properly devised system of harbor defense has combined the two plans of resistance so that they might reinforce each other and thus oblige the enemy, in shunning Scylla, to fall into Charybdis.

Ever since the invention of cannon they have been used as the armament of ships and of harbor defenses. In both cases they damage a ship's hull and destroy lives on board. Sometimes the ship thus attacked by gun-fire is destroyed by it and always she is more or less damaged. But in the very great majority of cases throughout

history the loss of life owing to the gun fire decides the battle and not the injury that the gun inflicts upon the hull. Usually a new crew only would restore to the ship most of her formidability. Similarly, in using guns against forts more or less damage is inflicted upon the armament within the fort, but in every century it has been a fact that the damage to the material is not usually conclusive, but the effect of the fire upon the morale and lives of the defenders is conclusive. The same is true in the case of field artillery, a defeated battery has usually suffered more in its men than in its guns. Thus in spite of frequent efforts of gunners to select certain materiel for their object of destruction, in all ages and under all conditions the effect of artillery fire usually is chiefly upon personnel. Although gun-fire often inflicts very grave injuries upon materiel, yet we have never been justified by history in *predicting* such injuries to be as influential upon the course of battle as the concomitant loss of life. Thus we may regard the gun (in modern times the high-power gun) as a weapon directed against life, its effects upon materiel are incidental only, although often of great importance.

The power of the guns on shore relative to the protection provided for the crews of the ships has not varied greatly through several centuries. The gun of the day has been thought powerful enough when it could pierce the side of a contemporary ship at a moderate range. Moreover, we find that the relation of the gun afloat to the gun in the harbor defenses has been constant also, both in size and in protection, and further that the gun ashore may be attacked by the gun afloat in two ways, either by a fire of large missiles to disable the gun, or a more rapid fire of small missiles to disable the gun detachment. It also appears that the relative value of a battery on shore to that of one afloat is a function both of the relative degree of protection that each enjoys as well as of the relative volume of fire that each can deliver. Fortifications, ships and cannons have always been so related that ships have needed a very considerable superiority in volume of fire to engage shore batteries without severe loss, and when the ships have suffered little it is more often because the gun detachments are driven away than because the battery is badly injured. With regard to the gun, therefore, we conclude that its use and tactics in the future will be what they have been in the past without being much affected by possible changes in guns and armor. The gun's function is primarily to destroy life.*

*Of course, these remarks do not apply to the use of breaching batteries in siege operations.

Next let us consider the means available to the defenders of resisting the ships themselves. These have always been of two kinds, strictly passive obstructions or obstacles, such as chain barriers, floating booms, sunken wrecks or piling, etc., and active means of inflicting injury upon the ships. In the latter class fire ships have always been employed, but they have been serviceable only under special circumstances. In closed waters they have usually been ineffective so that they have not been generally regarded as important. The submarine mine was the earliest addition of a practical kind to the ways of injuring the ship, and this was followed by the spar torpedo, the automobile torpedo, and latest, by the submarine boat carrying an automobile torpedo. In these various ways of opposing the ship, as distinct from opposing the crew, we see a progressive change from a bare passive resistance to the advance of the underwater body of the ship, towards an increasingly active attack upon the same underwater body, with the subamrine boat and its torpedo as the farthest point of the development. The submarine boat is now a mechanical success, but experience has not developed proper tactics. In attempting to use it we are in the position of a man who for the first time picks up a sword. He can wound an unskilled opponent with it immediately, but to parry with it or to wound a practiced adversary is a matter calling for much training. Nevertheless, whatever may be our present doubts as to the proper tactics of employing submarines, we may be sure that they have come to stay because they conform to the natural line of progress in harbor defense, which we have seen to be that of increasing the activity and efficacy of resistance to the underwater hull of ships.

Another means of resistance directed primarily against the structure is the mortar. Although the fire of high-angle artillery has been used a very long time, yet until quite recently it has not been sufficiently accurate to be applicable against moving targets on the water, and therefore it is only within the past few years that mortar batteries have been extensively employed for coast defense. Seacoast mortars endeavor, if possible, to sink ships by complete penetration, and therein lies their peculiarity which classes them apart. High-power guns act principally against life, and mortars principally against materiel. The mortar differs from other weapons whose main action is against the ship in that it is placed upon the land. It also differs from other seacoast guns in that it is generally so placed that it is not as liable to injury from ship fire as high-power guns.

Let us now turn to methods of attack. As was before remarked, through all the centuries a good defense has so combined a plan for

injuring the persons of the attacking forces with one for injuring the ships themselves that the two plans shall reinforce each other. Therefore any good plan of attack should endeavor to encounter only one of the two methods of resistance. Throughout the centuries there has been only one sure way of accomplishing this; namely, by making the principal attack by the shore and not involving the ships themselves to such an extent as to risk serious injury to them. Just here is the point where modern inventions have affected tactics, but in detail only, not in broad principles. In the past the resistance to the ships was passive and immobile, and therefore in the struggle for the possession of a fortified harbor it was the proper sphere of the fleet to use its heavy artillery freely in aiding the force on shore, since the fleet was always at liberty to retire without danger of a counter attack. At the present time the defense employs to advantage an active mobile counter-attack upon the under water hull, and it is to be expected that in the future, more than in the past, attack upon fortified harbors will take the form of a military siege, while the navy will act as a covering force.

Indeed we may consider that the late operations against Wei-hai-wei and Santiago which we have examined and where the navy took such inactive parts in spite of the exclusively naval objectives, we may believe, I say, that these campaigns clearly foreshadow future practice. This view is confirmed by the thought that a harbor is attacked because it plays a part in a system of communications. But a fleet's duty is to occupy a region and control the sea communication therein, and so it is poor policy to gain a desirable seaport by the sacrifice of ships which are the very means of utilizing the capture. In other words the ships of a fleet should actively assist in the capture of a seaport only when their probable losses will not affect their control of the sea.

Thus a comparison of past operations leads us to the conclusion that the attack on fortified harbors must be, in the future, chiefly a work for an army; and the navy, as a rule, should confine itself to maintaining and protecting the sea communications of the besieging army.

Defense should avail itself of every opportunity for counter attack. In the past the naval support and supply to the siege operations has always been liable to such a counter blow; which, when successful, must cause the attack to collapse. But here again is a point of difference between old means and new, and therefore between old and new tactics. Formerly channel obstructions were almost as much as an obstacle to the exit of the defenders from the harbor as they were to

the entrance of the besiegers; and therefore the counterblow usually came from the outside. With proper control of the sea on the part of the attack this outside counterblow, of course, could not come at all. At present, with channel obstructions which do not restrain friendly forces the counterblow is deliverable from within the harbor where a refuge is at hand after striking. Further, the development of mobility in the means of attack on ship's bottoms has provided a readily available means of delivering a very formidable counterblow.

As was the case in the past, so in the future, the maintenance of contact between the naval and transport fleets on one hand and the besieging army on the other, will always be the most important feature of the entire campaign, but the defense's newly acquired capability of delivering an effective counterblow on the water from within the harbor transforms this maintenance of contact to something far from what it used to be, and makes it the vulnerable and critical feature of the operations.

A skilful admiral in performing his part in capturing a harbor will, therefore, rather withdraw his heavy ships; holding them in reserve for use against a relieving fleet, and will develop the greatest activity in picket duty on the part of his gunboats, torpedo boats and submarines in order to prevent the similar craft of the enemy from interfering with the transport fleet. He will, if possible, send his light craft, particularly the submarines, inside against the hostile vessels there. The besieging army will regard it as its duty to attack and annoy all hostile shipping inside no less than to advance its siege operations, because the ships of the defense will operate against the besiegers' line of supply, when they go outside to deliver the counterblow; and when inside, they will very considerably limit the action of the besiegers' field forces within their own lines. The active naval work of the campaign on both sides will therefore largely take the form of picket work, mining and countermining, and minor attacks by gunboats, torpedo boats and submarines.

All classes of work except the last are fairly well known through experience. But with regard to the tactics of submarines we know nothing. Hostile submarines are in the position of two duelists armed with knives and turned loose in a dark room. Both will want to see, and I am inclined to think that submarines will sacrifice much of their invisibility for the sake of acting quickly and with certainty.

But here we are going into the field of speculation. There can be no doubt, however, that they will play an important role, because our historical examination shows us that they are in the line of progress of three hundred years.

Thus, to conclude our study, we may say that, as formerly, so in the future, the sea-coast guns of all descriptions and the channel obstruction will be the foundations of harbor defense. But, whereas in former times improbability of any serious counterblow authorized and required the battle ships to take a more or less prominent part in the reduction of the defense, the new facility the defense has acquired of delivering a counterblow will oblige the battleships to remain somewhat in retirement while the work of reducing the defenses will fall more exclusively than in the past upon a land force operating in rear of the sea-coast forts.

The active work of the navy in these joint operations will be by every means possible to prevent the delivery of the counterblow upon the water.

W. L. RODGERS,

Lieutenant Commander, U. S. N.

(*Concluded.*)

*AROUND THE WORLD IN THE U. S. FRIGATE CONSTITUTION IN THE DAYS OF THE OLD OR WOODEN SHIPS.**

A DINNER WITH THE SULTAN OF MUSCAT—CROSSING THE LINE, ETC.

IT is an old story now, that of the cruise of the old Frigate Constitution or Old Ironsides around the world before the writer had reached his majority, who served as clerk in that favorite ship under command of Captain John Percival, in the years 1844 to 1847.

On November 13, 1843, I left Boston to join the Constitution, which was being repaired for sea service at the Norfolk Navy Yard. These repairs were completed in May, 1844, and the ship was ready for sea a few days thereafter and the officers and crew were taken on board, in all about 500 souls.

The writer does not propose inflicting upon his readers the daily life of a sailor which is generally a monotonous and non-eventful one, but to touch upon matters of more importance, which led to excitement and pleasure and served to render the cruise less monotonous and tiresome.

While in Norfolk I became acquainted with an old sailor who was of the crew of the Constitution in 1812, Adrian Peterson, a Swede, who, in the engagement between Old Ironsides and the British Frigate Java in the last war with Great Britain, shot Captain Lambert of the Java in the shoulder, who died of his wounds. Peterson was unable to proceed with us on our cruise around the world, having been the victim of rheumatism, and was sent to the Norfolk Hospital. He was then a man of 70 or more years. The ship proceeded to New York and took on board as passengers to Rio de Janeiro, Brazil, Hon. Henry A. Wise, of Virginia, and family, in all thirteen persons. Mr. Wise had been appointed Minister to Brazil by President James

*The cruise of the U. S. frigate Constitution or "Old Ironsides" I have told in the UNITED SERVICE MAGAZINE some months ago, but I have thought that I could interest my readers with an additional chapter of that cruise, and thus close the record of what was sixty odd years ago considered to be a wonderful thing to happen to a youth of twenty years of age, for only two or three U. S. vessels of war at that time had circumnavigated the globe.

K. Polk. The Constitution was ordered to take him and family out. He was afterward Governor of Virginia, as was one of his two sons (John S.), then boys of ten and twelve years of age. The father of the family, Henry A., was Governor when John Brown was executed.

We went to sea with the same armament in every respect, 52 guns in number, with which the Constitution fought and won all her battles in the war with Great Britain in 1812 to 1815.

The story of the Constitution is a remarkable one. She was built in 1797, being one of six frigates ordered by Congress under the presidency of John Adams, who succeeded Washington in office; of these vessels the Constitution built in Boston and the United States built in Philadelphia, proved to be at least the equals in speed of any vessels of the old or any other navy. They were launched about the year 1799 and immediately fitted for sea. The Constitution proceeded to the Mediterranean and joined the Squadron under command of Commander Preble, who was born, I think, in or near Portland, Me., and achieved a great reputation for his success in bringing the piratical Tripolitans to terms. The United States was the first nation and the youngest of all at that date to bring the Barbary States to a sense of their unwarranted demands. Great Britain, France, Spain and the other European maritime nations had paid tribute in coin for the privilege of security in trading in the Mediterranean Sea, and it was not until the youngest of the nations stepped in with its efficient squadron and absolutely refused to pay, that the Barbary States were brought to terms. This much for a portion of the previous history of the old ship.

After leaving New York, the first foreign land we sighted was the Aores (Portugal) or Western Islands, off the coast of Africa.

Next we touched at Madeira, at both places being entertained right royally for a fortnight.

Next we touched at Teneriffe, Canary Islands, where Mr. Wise and party ascended the Peak of Teneriffe, about thirteen thousand feet high, on 4th of July, 1844. This date is as fresh in my memory as though it was an occurrence of yesterday, for I wanted to join the party, but the Captain, a personal friend of our family, objected, saying: "You can see the whole of it from the ship, and ascending it is painful and tedious, and besides if anything happened to you how could I meet your mother?" This name, you may rest assured, overcame my wish.

One day walking about the city of Santa Cruz, the capital of this group of islands, we visited the city prison and made an examination

of its cells. In one of which the Captain stopped and said to me: "Here on this very spot in the time of Nelson's wars, about 1805, I was taken prisoner and confined for several months after having been robbed of my ship. I fortunately escaped with the connivance of a British captain upon whose vessel I found an asylum and returned to the United States by way of London." He and a portion of his crew had been previously pressed on board one of Nelson's vessels from which he escaped after serving in one of the battles against the French and Spanish combined fleet.

We remained at Rio Janeiro a month. The French Corvette, Berceau, left Teneriffe in our company and we arrived together the same morning at Rio. We had, however, sailed 200 miles further, as appeared by an exchange of charts.

Both ships sailed from Rio in company, she with the French Admiral on board, to go to the east coast of Madagascar. She was afterward lost with all on board.

It was not the day of steamers and we saw but two on the whole cruise.

We sailed South, intending to land at the Island of Tristan d'Cunha, named for its discoverer, the celebrated Portuguese navigator. This is one of a cluster of islands, rocky and abrupt and difficult, almost impossible to effect an anchorage at, except in one place, which we were four days trying to make, but failed. The gale was too severe. The Captain in his early career as a sailor navigated among those islands as a seal hunter, and he went far into the Southern Atlantic to see the place where he had passed so much of his youthful career. But we were not to reach it, so we steered for the west coast of Madagascar which great island, almost as large as Australia, has been since conquered and taken possession of by the French.

From Madagascar, after visiting a number of ports in the island, we crossed the Mozambique channel and stopped at the City of Mozambique, governed and armed by the Portuguese. There the Governor dined us, furnished us with fresh provisions and fruits and treated us right royally.

Thence we went northward, skirting the eastern coast of Africa, until we reached Zanzibar, which was a possession of the Sultan of Muscat, where he was then residing. He was a fine-looking Arab, with silver grey hair, one of the most gentlemanly men it has ever been my lot to meet with. He invited the Captain and as many officers as could be spared to dinner, some eight or ten, I think. We had a table by ourselves, he was by himself at another table. Our

pieces de resistance were two entire sheep; there were ducks, chickens, etc., for side dishes, with all European dishes, sauces, etc. Our drink was what was called "Sherbet," no wines or cordials. It was very palatable. I presume the roast sheep was a relic of barbarism, but to my eyes in the hey-day of youth, it seemed to me exactly the thing. As there was an American Consul at Zanzibar, we remained there a week, and then set out to cross the Indian Ocean for China, Manila, etc.

We touched on our way at the Seychille Islands to which country our commerce was extending, as at Mozambique and Zanzibar. Let me say that the Sultan of Muscat and his possessions are now under the protection of Great Britain. We finally reached Cochin, China, which, with Tonquin and their dependencies, have been conquered and taken possession of by the French. As our ship came to anchor in Touron Bay a boat put off from shore and a native came on board bearing the appearance of some religious character. In fact, he was a convert to Christianity. He drew from his habiliments somewhere a letter in French, which purported to be from a Bishop Lefevre, Apostolic Vicar of Cochin China, stating that the latter had been seized at Rue, the capital, and was in fearful danger of his life. He was fed on bread and water, put in irons and was to be tortured gradually to death by burning and other devilish expedients such as tearing out the finger and toe nails, so many a day; and he threw himself on the mercy of any ship which might come into the harbor until the regular French man-of-war, which was soon expected, should arrive. What to do we hardly knew, but a council of officers was held and it was decided to adopt some measure for his immediate relief or at least fight for a delay until help might reach him. In the meantime the civil and military governor of Touron, filling two large barges with their attendants came on board on a visit to the Captain. They were received in the large forward cabin. They stayed a half an hour. I should say meanwhile the clerical-looking Chinaman got into his boat and made tracks for shore. It was decided by the Captain to return this visit of honor of the Governor's in a couple of hours. As many of our crew as could be spared were armed with cutlasses and pistols. I, as Captain's clerk, was armed with two horse pistols, each one a foot in length, in my belt, to go ashore with them as I always accompanied the Captain to take notes upon which I used to base the correspondence with the United States Navy Department. We marched in military order up the avenue, leading to their palace, stationing about 300 at regular distances on each side while the Captain and officers walked up the palace steps, as the Gov-

ernors came down to receive them. Without saying a word the Captain seized one governor under the arm; the first lieutenant, Mr. Amasa Paine, the other, and they headed a procession to the shore, the crew closing in gradually. I think the senses were driven out of these two poor devils of Chinese for there were at least one thousand Chinese soldiers round and about the palace. However, they were put into the Captain's boat, and we carried them off on board of "Old Ironsides" where we kept them four days. By corresponding during the interim we got information from Hue that the priest's life would be spared for the present. We drew out to sea once a day and exercised with two Paxian guns, about the first of the later invented implements of warfare, by Sir William Paxian. We left in due time for China proper and had the pleasure of meeting Bishop Lefevre at Macao, where he had been conveyed by a French man-of-war, which had rescued him from his great peril.

The rockets then used were the invention of Lord Cochran, who was wrongly punished by England for alleged furnishing false information of French successes in the old French and Spanish wars. He was afterward in the employ of Chili and reinstated as a member of the British Parliament and restored to his position and lived and died with an honorable reputation. When at the end of four days we released the two Governors of Touron they were tied with their heads to the tails of donkeys and paraded on the beach of Touron Bay followed by a motley crowd. This was their degradation for allowing themselves to be taken. After much correspondence and a good deal of bluff, we left for China proper, with the understanding that they would be severely punished by the French if they harmed the Bishop. On the second day after our departure, a French Frigate arrived in Touron Bay and Bishop Lefevre was delivered up to it and taken to Macao, China.

Captain John Percival, a sailor from Cape Cod, was known the country over in his day as "Mad Jack" Percival, one of the bravest men in the old navy, who had learned his profession in the mercantile marine, who had served under that grand old sailor, Isaac Hull, who for nautical skill and seamanship stood at the head of his profession. This Cape Cod boy was master of a ship at 18, navigated a sloop from the African coast to Pernambuco, a distance of more than three thousand miles, when the rest of the crew were stricken down with African fever. Again when in command of a bark trading to Marseilles, on going ashore, almost the first man he met was his own father, who had been to England to secure a patent in which he was

interested, and having heard his son was in command of a vessel bound to France, he had wandered over to Marseilles, sick, starving and in rags, to beg a passage back to the United States. The old man never regained his health or strength; he gave way to the enormous strain he had undergone, and was buried by his son off the Banks of Newfoundland.

One of the events which led to the War of 1812 was the impressment of American seamen by the British. All of your readers must have heard of the affair of the Chesapeake and Leopard, which happened in 1807, when the latter took three American sailors from the Chesapeake, commanded by James Barron, who killed Stephen Decatur in a duel for charging him with cowardice on the occasion; it is all a matter of history, to be found in Abbott's "Blue-Jackets of 1812," or other naval work. Among those who left the merchant service shortly after this insult to our flag and joined our little navy, was John Percival, who was appointed sailing master, a grade just below that of lieutenant. Under Captain Lewis Warrington, who had command of the sloop of war Peacock, in 1814, as sailing master, he carried that vessel into action with the British brig Epervier, of equal force. The engagement lasted 45 minutes, during which the Epervier had the weather gauge, notwithstanding which she was cut to pieces, and came out of the action with five feet of water in her hold. She lost eight killed and fifteen wounded. The Peacock received no material injury and not a shot touched her hull, while her apponent had 45 shot holes in her hull, and was in nearly a sinking condition.

Captain Warrington, in his letter to the Secretary of the Navy, said, "Sailing Master Percival handled the ship as if he had been working her into a roadstead," for which a lieutenant's commission was given him. He went on from grade to grade until, as Post Captain, he commanded the Constitution on her voyage around the world, from '44 to '47. He died in 1862, leaving a reputation for professional skill of a high order; although a strict disciplinarian, he was a popular commander. These and other things are all set down in the log book of a youngster of eighteen, and they bring to my mind with a startling vividness other events of more than half a century ago. There are the names of four brave men recorded in my log who were in Norfolk while the Constitution was being fitted for sea, whose acquaintance I made; Commander Charles Morris, who was lieutenant under Captain Isaac Hull when she escaped from the British fleet off Sandy Hook, to whom Hull gave the credit of the escape; Commander Charles Stewart, "Old Ironsides," who, in the

Constitution, captured the Cyane and Levant; Commander Jacob Jones, who was the hero of one of the greatest battles in the whole war—that of the Wasp when she captured the Frolic, the two vessels fighting with their guns under water in a heavy sea, and Captain Lewis Warrington, who so bravely fought and captured the Epervier in the Peacock, as above related. These four veterans of the War of 1812 were the personal friends of "Mad Jack," old sea dogs, every one of them.

At last Old Ironsides was ready for sea, and on the 14th of April, 1844, we weighed anchor, discharged the pilot off Cape Henry, and stood out to sea, bound for New York to take on board the Hon. Henry A. Wise, Minister to Brazil, and his family as passengers to that country as heretofore related. We were blown off into the Gulf Stream, where we encountered severe gales and head winds, and were ten days getting from Norfolk to New York, during which period I enjoyed the delights of a "sea life." I was sick unto death, and I vowed a vow that if I ever could secure a foothold on a six-by-nine piece of land, there would be no more sea for me; no, not for whatever glory there might be in sailing around the world in Old Ironsides. Life had no pleasure for me; the sight of food disgusted me, and I would have sold out cheap.

But there is a silver lining to every cloud, it is said, and there was one to ours. I was not doomed to end my youthful days by seasickness. After three days of as wretched existence as I have ever endured, the ship became easier, my footing surer, and my physical condition improved. My appetite returned, and I could eat my allowance. The weather cleared, and I was a boy again; everything disagreeable had been lost sight of, but I think I shall never entirely forget my first experience of the sea.

In the party of Mr. Wise there were thirteen persons, nine in the immediate family, and four colored slave servants. Mrs. Wise was a daughter of the Hon. John Sargent, of Philadelphia, who was, I think, on the ticket with Daniel Webster when the latter was nominated by the Whigs for President.

Soon again we were at sea, bound for Brazil, "where the nuts come from." From our day of sailing for ten days nothing of special interest occurred; but I find in my log-book reference made to the armament of Old Ironsides as being, with the exception of two Paixhan guns, the same she had when she captured the Guerriere, Java and Cyane and Levant, and that our binnacle was taken from the Java when she was burned by Bainbridge; and that we had on board the marine, Adrian Peterson by name, who, from his position

in the main top, killed the commander of the Java, Captain Lambert, by a shot with a musket ball through the shoulder.

The first foreign land we made was the island of Flores, one of the western group, near the African coast. I can hardly describe my feelings. I felt as if I was in a different sphere, everything around seemed to have changed, I was like one bewildered. I think every one upon first seeing a strange land has an emotion of awe come over him hard to describe. On we went toward Fayal and the peak of Pico, the latter rearing its proud head 8,000 feet above the level of the sea. We anchored at Orta, the harbor of Fayal, and were met and welcomed by the Vice-Consul, Frederick Dabney, Esq. After a visit of a few days of great enjoyment, we set out for Madeira, one of the loveliest islands in the world, the temperature of which is never above 80 degrees or lower than 50 degrees, and as all of you know the salubrity of its climate has rendered it the resort of invalids from every quarter of the globe. As at Fayal we were most gloriously entertained, and it was with feelings of deep regret that we bade adieu to our newly found friends.

On the afternoon of July 1, 1844, we came to anchor in the harbor of Santa Cruz, in the Island of Teneriffe, where the mode of life was more Spanish than Portuguese, as it was in the other islands. The first visit I made on shore was to the prison with "Mad Jack," when he took me into the dungeon in which through some formality of law he had been confined for several months on bread and water, for deserting from an English man-of-war on board of which he had been impressed. A Yankee captain then in port bribed the jailor and Percival escaped to the mole or landing place, secured a boat and rowed out direct to sea five miles, where he was taken on board the Yankee vessel in which he returned to the United States, then only in his eighteenth year. A party was made up from the ship to ascend the Peak of Teneriffe, a feat which few Americans have accomplished. They were gone four days and traversed 90 miles, most of the way on horseback. The summit of the peak is between 1,000 and 13,000 feet above the level of the sea, and the party could approach no nearer to the summit on horseback than six miles; then they walked, and so great was the rarification of the air that most of them were taken sick. The ground beneath the feet was hot. On the morning of the glorious Fourth, the party stood upon the topmost peak of the mountain, and after Mr. Wise had recited the Declaration of Independence, the party retraced their steps. At Oratava we were shown Humboldt's chair and the window at which he used to sit.

Leaving Teneriffe on the 6th of July, we crossed the Equator on

the 24th, when we indulged in the time-honored custom of "crossing the line," about which you may have happened to read in old sea novels or talked over with an old time salt or sailor of the old school. The evening before we were started out of our messes by the cry of "Neptune's coming, Neptune's coming!" Upon reaching the deck we saw a bright light a mile or so distant over the stern. All hands repaired to the gangway, and a curiously dressed personage was seen advancing, who inquired for the captain, proclaiming himself to be a son of Neptune and "a true chip of the old block." This fellow had so completely disguised himself that but few knew his identity. Upon being presented to the captain, he said that his father had commissioned him to deliver a letter, to which he desired an answer, as there are many other ships about to enter His Majesty's dominions, and time was precious, and that next morning we might expect His Majesty, who would examine every mother's son who was making his first visit to his dominions, and that the treatment would be as gentle as possible under the circumstances. His young godship then left, and upon looking over the taffrail we saw another light depart, supposed to be the car of the messenger.

The crew, or those of them who had crossed the Equator, had made all their arrangements, and precisely at 9 o'clock the next morning, Neptune, his wife, children and other relatives to the farthest degree made their appearance upon the quarter deck. Neptune stated his errand, which was a desire to examine every one who had never before visited that part of the world, for he intended to make all subject to his law. After being treated, each all round, to a stiff glass of grog, Amphitrite, the spouse of Neptune and the mother of Triton, having an extra portion on account of her sex, they retired to the forecastle, where a throne had been erected, upon which Neptune and his family were seated to overlook the introduction and examination of the greenhorns of the crew. From the gangway to the forecastle a tarpaulin had been suspended full of water, at the forward end of which a bench had been raised some four or five feet. The water was clean, and, taking advantage of it, having been posted beforehand by one of the sailors who was known as the Duke of Wellington, so named because of his being totally unlike the Duke, to whom I had given an occasional glass of grog from the captain's stock, I was lifted on this bench, my face scraped with a piece of hoop iron, first being lathered with a compound of tar, etc., and before I knew it I was in the air, it seemed to me ten feet, and was ducked and mauled from forecastle to gangway. At last I obtained my

freedom, went down and put on a fresh suit of clothes and returned to see the other greenhorns undergo a similar experience.

Every one but the ladies and children went through this performance; what with the lather of lamp-black and tar, the water began to thicken and discolor, and I congratulated myself at having crossed the line early in the game. Every one was asked by Neptune some question as to his travels, if he belonged to the church, etc., and, before the answer came, into his mouth went the tar-brush of lather. If one showed temper at his treatment, he was served with a double dose. I remember the purser and his clerk, the two persons most disliked by the sailors—there were no paymasters then—made some opposition; but it was no use, the day was Neptune's. Some of the greenhorns went into the rigging for safety, but they were seized and brought before Neptune for judgment, whose satellites showed them no mercy. The purser went so far as to say that he would report to the Department, and have a court-martial on the captain; but, as all this was done for the amusement of Mr. Wise and family, nothing came of it. At 12 o'clock the decks were dried, and nothing remained of the ceremony of "crossing the line" but the remembrance.

So I have brought you to the Equator, where let me leave you for a while. "What do you think, Sir Edward, of this harmless amusement," I addressed a wooden effigy of an old English Admiral, Sir Edward Vernon, which I had endowed for the occasion with speed and action.

"It's nothing," said the Admiral, "but good fun. Why, go back to the days of good Queen Bess, when a warship was a terrible place to live in, no games or fun of any kind. All the attention seemed to be paid to keeping her upright, and the vessel was kept from capsizing by a gravel ballast, which was seldom changed, and it became so soaked with bilgewater, drainings from beer casks, and the general waste of a ship, that it was a source of injury to the vessel and of danger to the crew. The cook-room was a solid structure of bricks and mortar, built in the hold on this ballast, and, beside making the ship hot and spoiling the stores, was a frequent source of fires. This was the way ships were navigated before the days of Queen Anne. The chief danger to the seamen of those days was not in storms or dangers from the sea, but in scurvy and other diseases caused by bad food and worse sanitation. Why, in the expedition of 1559, two-thirds of the men employed perished for want of food; they used

to put beer in old oil and fish casks. What must have been a sailor's life in those days, compared to that of the days of your youth?

"Queen Elizabeth was a pincher. She made Howard and Drake pay out of their own pockets for the wine and arrowroot supplied to the *dying seamen at Plymouth.*"

I have often wondered if, perchance, there was another old shipmate left of the 500 who formed the officers and crew of Old Ironsides in 1844. I am in my eighty-second year and I feel that I may be the last survivor of this cruise around the world in the favorite ship of the navy, "Old Ironsides."

BENJ. F. STEVENS.

OUR CONTEMPORARIES.

AN analysis of the contents of the principal military periodicals, systematically classified under a few general heads for the convenience of the reader and student, comprising extracts and comments, in which special attention is given to the most important and valuable articles.

ORGANIZATION, ADMINISTRATION AND MOBILIZATION.

1. The Russian Machine Gun Companies.—*Kriegs. Zeit.*, 2.
2. Field Companies, Royal Engineers.—*Royal Engrs. Jour.*, Jan.
3. Experiences of our Army since the Outbreak of the War with Spain.—*Jour. M. S. I.*, Mar., Apr.
4. Present Needs of the Coast Artillery.—*Same.*
5. The Use and Organization of Machine Gun Detachments.—*Kreigs. Zeit.* 1.
6. Siberian Balloon Companies.—*Same.*
7. The Proposed Reorganization of the Infantry, Militia and Volunteers.—*Jour. R. V. S. I.*, Jan.
8. Army Decentralisation.—*A. and N. Gaz.*, Jan. 14.
9. The Regimental Districts.—*Same.*
10. A great General Staff for the Army.—*Same*, Feb. 18.
11. The Double Company System.—*Same.*
12. Changes in the World's Armies and Navies.—*Jour. R. V. S. I.*, Jan., Feb.; *Mar. Rund.*, Feb.

The *first* article relates to the introduction of machine gun companies into the Russian army.

In the summer of 1901 four such companies were organized experimentally in European Russia, and one in Asiatic Russia, and now, after three years of experience, it has been decided to adopt them permanently for the army. The Manchurian army already had two of such companies, one of which did excellent service at Liaoyang, firing 26,000 rounds in the two days of the battle (August 17 and 18), and losing 30 per cent. in killed and wounded.

The *second* article relates to Engineer companies in the field, which contains some points of general interest:

"In December, 1897, the *Journal of the Royal United Service Institution* contained an article by me on the "Fourth Arm," in which

I mentioned that there appeared to be no satisfactory exposition setting forth the duties and scope of action of Engineers in the modern battlefield in co-operation with Infantry, and stated my conviction that there is a *role* before the Fourth Arm in the forefront of a battle as glorious as that which they enjoy when a siege is being actively pressed or a defence stubbornly conducted. I endeavored to supply deficiencies in the then drill-books so far as the employment of Engineers in action was concerned, and made certain observations from which the next ten paragraphs are extracts.

"To gain information Engineer officers are required with the advanced Cavalry reconnaissance, and from this reconnaissance they should be able to foresee and arrange beforehand for rapidly fortifying important positions to be gained by the Infantry and for the passage of Cavalry and Artillery over partially destroyed bridges, etc. A few specialists will also be required with the advanced Cavalry to assist in destroying or re-forming communications, to tap and repair telegraphs, etc.

"The bridging section must be well to the front; and the telegraph battalion must connect up the various sections of the battlefield with headquarters, and maintain this connection.

"Obviously, therefore, the Engineer-in-Chief must be intimately acquainted with the plans of the General in command; and Commanding Royal Engineers, though they should frequently proceed to the front to ascertain what engineering works are required and to ensure the effective co-operation of the engineer arm, must constantly rejoin the headquarters of their units to keep touch with the views of their own Generals.

"The company training of the Infantry must suffice to enable them to entrench themselves in the firing line, though Sappers may occasionally have to be pushed forward to assist in the defense of specially important points or the fortification of *points d'appui* to prevent a check degenerating into a rout.

"The Engineers with offensive sections use their rifles when required to do so, and the Infantry soldier must also be taught that the entrenching tool is second only to the rifle in importance and that he must use one or the other as the exigencies of the fight may direct.

"An attacking force must ever be ready to assume the defensive and to entrench themselves; the want of time to carry out this precept in maneuvers leads to a lack of reality and to a vicious training. The modern battlefield is a slow and weary wearing away of opposing forces; the advance can only be made step by step; and here comes in the increasingly important *rôle* of the Fourth Arm. * * *

"The application of field works to tactics should be practiced during maneuvers. All units should be accustomed to test the use of field entrenchments in various circumstances, in the firing line, in an extended 'holding' position, etc.; and staffs should be organized to give unity of action and effort. The training of Infantry on 'field-work grounds' gives no idea of the application of works to tactical requirements; in all tactical exercises and maneuvers lines of entrenchment or redoubts might be represented by lines of implements and men at their digging posts. Time for construction of works in the field does not fail so often as the presence of tools and engineers at the right time and place. * * *

"Every arm can best work out its own tactics. To the 'Fourth Arm' this virgin duty now falls; and this can possibly be safely left to the rising generation of the Corps, to the captains and subalterns whose young, vigorous and impressionable minds will find in it a task worthy of their steel. Innovations will always be received with caution and many difficulties have to be overcome; but let us be practical, and solve them practically and not academically. To this end let us hope to see the Field Companies concentrated yearly in camps under selected R. E. Officers, working at tactical field work problems over haphazard country, gaining that eye for country which will alone enable them to adapt works to ground and to intuitively seize on points of advantage during an advance or retreat, etc.; all this without at the same time neglecting to render themselves efficient in all the practical constructional details of field engineering, and to elaborate a thoroughly efficient equipment and organization, etc."

The *third* article, by Captain Rhodes, is the Gold Medal Prize Essay, and constitutes a most interesting and instructive discussion of our present organization. It is a well written, carefully digested, presentation of the subject-matter, founded on reliable and accurate data, and the method of treatment is, to say the least, masterly.

The *fourth* article, by Lieutenant Brooke, in its introductory remarks, which are of a general character, is excellent in its main points, but when the author goes into details he not only detracts from the dignity and importance of his subject, but loses himself in minutiæ that have comparatively small value. We cannot agree with the idea that a soldier should be a recruit during the entire term of his first enlistment, because this is entirely opposed to the modern idea of *individuality* in all training; some men, by their intelligence, adaptability and initiative are recruits in spirit and fact only long enough to learn their routine duties, while others never rise above the condition of recruit, except in certain directions.

Nor is any change required in the present organization of the headquarters staff of the Artillery, which has been most effective in *accomplishing* during the short period of its existence. Its record speaks for itself. Nevertheless, we agree that the responsibilities of the Chief of Artillery are sufficiently great to warrant his having the rank of a Major General.

The essay brings up for consideration a number of other points. In its larger features it is generally broad-minded, but in the minor details it appears to be too narrow, and too evidently reflects the author's limited experience and the particular matters in which he has been specially interested. On the whole, however, it is suggestive, and many features of it deserve careful consideration.

The *fifth* paper, by Lieutenant Colonel Von Layriz, a well-known authority, discusses the various uses of machine guns and the question of the arm of the service to which they should be attached.

The author considers that machine gun detachments should be attached both to the infantry and the cavalry, and believes that these weapons will still have their use on the battlefield, even after the introduction of an automatic rifle for the infantry.

He cites some interesting cases of the use of machine guns in the Russo-Japanese War:

"The Russian General Festoroff reports as follows:

"On April 20, 1904, a machine-gun battery did good service in the battle of Turenchen, in firing on the troops of the Japanese attack on our left flank with such effect that they had to entrench itself. Later on, the same battery covered the position taken up by the Twelfth Infantry. And again, although the battery had received orders to retire, it at once took part in the engagement again when the dangerous condition of the Ninth Battery was made evident. In this battle the machine-gun battery brought heavy losses on the Japanese, but also suffered severely itself, losing one officer and 38 men killed, and a large proportion of the horses. The battery fired in all 38,000 shots.

"General Festoroff also reports that the machine guns of the Japanese often became troublesome to the Russians. On May 17th, for example, two Sotnias of Cossacks, fighting on foot, were compelled to retire by the Japanese machine guns."

The entire article contains much useful information and many indications for the tactical employment of this special arm.

The *sixth* article describes the Russian balloon company, organized after the opening of the war. It is not known whether it took part in the war. Such improvised organizations, established after war begins,

are rarely of much use for the war in progress. The company comprises 3 officers, 193 men and 138 horses. Among the men are 22 non-commissioned officers, 95 privates, 17 machinists and other experts, and 59 soldiers of the *train*. The wagon train comprises 56 wagons in all: 2 winch-wagons (one for horse power, one for steam power), 1 water wagon, 1 balloon wagon, 1 wagon for instruments, tools, etc., 1 gas wagon, 3 wagons for canvas and ropes, 14 wagons for acid, 24 wagons for iron filings (five days' supply), 3 coal wagons and 5 wagons of gas generators. A commissary train of 9 wagons is attached. On this train there are 4 anchored balloons available, besides the following intrenching tools: 50 spades, 50 picks, 40 axes, 40 crowbars and 3 saws.

The *seventh* article relates to the recent reorganization of the British Army, from which we quote an interesting statement:

"To return to the proposals of the Secretary of State for War:—

"There is, however, in the preceding paragraph to the one I have quoted from the Secretary of State's summary, a statement which, I think, must be traversed entirely. He says:—'If we have not command of the sea it will not be necessary for an enemy to land, it can starve us into submission.'

"Is this so? Can corn be kept out of this country unless America and the countries on the west of Europe were all allied against us and successful at sea? But such an alliance against us may be said to be politically impossible.

"I do not underrate the effect of a naval war or of even a single naval reverse upon the cost of bread, and think that in case of a naval war Government should have power to regulate the cost of bread to prevent its undue enhancement by panic and speculation; but this does not alter my contention that you cannot starve this country, except by such an alliance as I have mentioned.

"If a large body of troops may, under certain circumstances, make such an attack as the Duke of Wellington indicated, a Regular force ought never to be dispensed with, but that does not affect the great value of the Militia and Volunteers.

"The Militia is the old constitutional force of this country, in which every man is liable to serve; the Militia has on many occasions been of great value to the country, and has largely helped to feed the Army with recruits. It has suffered too much by the process, and let us hope that the measures proposed for its amelioration will restore it to its proper position.

"The Militia can, I submit, never be done away with in this country as long as we have a Volunteer Army, for many a man makes experi-

ence of the Militia before he determines to join the Army. We cannot have general service for the Army until such service is felt to be necessary.

"Dry the Channel to-morrow, and it would at once be felt to be necessary; but till that happens there seems no probability of general service in the Army being adopted in time of peace. In a very exhausting war, which we may hope will not happen, this country must study the example of the United States. The Northern States, after incurring enormous expenses in pay, bounty, etc., at the end of the war could not escape compulsion; knowing this, it is to be hoped that, if this country is placed in such a strait, compulsory service will be resorted to before an immense debt is incurred in a vain attempt to avoid compulsion."

The *eighth, ninth* and *tenth* articles bear on the same subject. The last of these is of most interest to us, and we quote a few paragraphs from it:

"The truth is that the Army has been subjected for years to a process of tinkering in accordance with the exigencies of party government, and, under a system of party arganization, in which vote-catching is one end and aim of politicians, we have not much hope of amendment.

"Yet it must be the object of all who have the interests of the Empire at heart to lift the Army out of the pernicious atmosphere in which its administration is conducted. How grievous have been the influences of mere expediency upon it in the recent past all may see in an admirable article by Colonel St. John Fancourt, which we publish in another page. Let the truths he enunciates be taken to heart. They tell a sad story of the failure of politicians either to diagnose the disease, or to prescribe the remedy for the maladies they have themselves created. The Navy has not suffered in the same way. It stands more apart; all men now recognize its functions; they are agreed, therefore, upon its expansion to the height of sufficiency; and, what is more important from the political point of view, that expansion adds a certain number of pennies to the income tax of the 'classes,' but imposes no burden upon the great voting 'masses.' They, as Colonel Fancourt says in another connection, are content to sing 'Rule Britannia!' Happily, there is one bright feature in the prospect. The Committee of Imperial Defence is there to define the functions of the Army, as well as of the Navy, and thus to indicate the lines on which it should be constituted. What we require for its constitution is the due exercise of professional knowledge, and an end to the 'playing to the gallery' which has marked political direction of the Army.

"It is deplorable, as we have often pointed out, that while these discussions are going on, the Army is suffering in its dearest interests, and that its officers are subjected to most discouraging uncertainty. 'I am *nim muk wallah,*' each will say with Wellington: 'I have eaten of the King's salt, and I conceive it to be my duty to serve with zeal and cheerfulness, when, and wherever the King and his Government may think fit to employ me.' But what is the position of the officer? A soldier under the War Office system, be he of the highest or lowest rank, has no rights. He cannot demand a military or civil trial if his character is of the past. Let, therefore, the Army Council set about the creation of a Great General Staff, and of staffs in the commands upon lines which their knowledge and experience will indicate. With the Esher Committee we attach extreme importance to the constitution of a general staff with defined functions in peace and war, educated for its special duties, drawing to itself the pick of the brains of the Army, and working continuously to improve the training of the troops and the standard of their preparation for war."

MILITARY EDUCATION AND TRAINING.

1. Training Ranges and Long-Range Firing.—*Jour. Arty.*, Jan.-Feb.

2. Our New Infantry Drill Regulations.—*Jour. M. S. I.*, March-April.

3. The Target Practice of the U. S. Navy.—*Mar. Rund.*, Feb.

The *first* of these articles, by Lieutenant-Commander Sims, U. S. Navy, who has been for some years a recognized authority on the subject, and an able and energetic officer, especially interested in perfecting target practice methods, is a timely essay of prime importance not only to the Navy but also to the Coast Artillery.

The entire article deserves the most careful study and consideration. The author is not a mere theorizer, but has had plenty of actual practice and has been most successful as a trainer in gunnery. His article is based on actual experience and good sound sense. It is a valuable conrtibution on a subject of the greatest interest to artillery afloat or ashore.

The *second* article, by Lieutenant-Colonel C. J. Crane, 8th Infantry, now commanding the Porto Rican Regiment, is another valuable article by an able officer, who has devoted much time and study to infantry drill regulations, and has had considerable experience in the field.

The *third* article is a commentary on the preceding by a German naval authority, and is well worth study in connection therewith.

MILITARY HISTORY, STRATEGY AND TACTICS.

1. The Russo-Japanese War.—*Jour. R. U. S. I.*, Jan.-Feb.; *A. and N. Gaz.*, Jan. 14, Feb. 18; *Mar. Rund.*, Feb.-March; *Jour. Arty.*, Jan.-Feb.; *Jour. M. S. I.*, March-April; *A. and N. Jour.*, March 11.

2. Protection of Commerce in War.—*Jour. R. U. S. I.*, Jan.

3. Instructions for the Russian Army respecting the Laws and Customs of War on Land.—*Same*, Feb.

4. The Somaliland Operations, 1903-4.—*Same.*

5. *Der Weltkrieg.*—*Royal Engr. Jour.*, Jan.

6. England and Germany.—*A. and N. Gaz.*, Jan. 14.

7. Artillery in War.—*Ind. Vol. Rec.*, Dec. 31.

8. The Future of Cavalry.—*A. and N. Gaz.*, Feb. 18.

9. Sir John French on Strategy.—*Same.*

10. Organization and use of Machine Gun Batteries.—*Kriegs. Zeit*, 1.

11. Surprise of the Tabor Bridge, Vienna.—*Jour. M. S. I.*, March-April.

12. Types and Traditions of the Old Army.—*Same.*

13. The War and Field Artillery.—*Jour. Arty.*, Jan.-Feb.

14. The Foundation of Blockade Systems.—*Mar. Rund.*, Feb.

The *first* of these articles are utilized in another article in this magazine.

The *second* is of considerable importance and general interest, especially in connection with the coming Panama Canal:

"In former papers read by myself in this Institution I have always thought, and my opinion received a considerable amount of backing from competent authority, that the Suez Canal would be blocked in time of warfare. I find myself at the present time somewhat weakening upon this opinion; perhaps the wish that it may be possible to maintain our communications uninterrupted may be father to the thought. But be that as it may, we cannot shirk either the duty or the necessity of contemplating the possibility of inconvenience in this direction, especially when we consider the enormous results that will hang upon it. The more one investigates this matter the more one is confronted with the absolute hopelessness, at all events in the first days of war, of possibly diverting the Suez Canal traffic round the Cape of Good Hope. In days when ships' bunker coal is cut down to its lowest limit, the difficulties in the way of any great divergence would appear to be almost insurmountable.

"*Suez Canal Traffic*, 1902.—2,165 British ships, tonnage 6,772,911 tons; total for all nations, 3,708 ships, 11,248,413 tons.

"H. R. H. Prince Louis of Battenberg stated in 1893 that we could not possibly keep the Suez Canal open in war time. It is obvious that the divergence of a portion only of this traffic would be attended with considerable difficulty, and apart from the question of blocking the canal, there is the risk of torpedo attack on this route.

"In all the operations of modern warfare the supply of fuel is the principal governing factor, consequently in any question which affects the abandonment of the Suez Canal as a trade route, and brings forward the Cape route as an alternative, the first question to be considered is the possibility or otherwise of sufficient coal supply.

"From the latest information that I have been able to procure, I find that the stock of coal in Cape Town on 31st March was 21,600 tons, of which quantity 10,000 tons only was steam coal. There were in port on that date 11 sailing and 12 steamers—23 in all. During the course of the South African war, and with the plentiful supply of labor, 6 transports were sometimes coaling at once in Table Bay. It is doubtful whether in the near future this number could be greatly increased, and the power of the port for supply would probably be 2,000 tons daily, as a liberal estimate; this, however, would depend upon whether merchants had had any considerable notice as to possible demands for steam coal, quality and quantity of the local Cape coal being inferior. In dealing with the Cape, however, it would not be fair if, in considering possible resources, we were to deal with Table Bay only.

The advantages of Saldanha Bay would hardly appear to be quite appreciated at the present time. That harbor affords very great facilities for coaling in smooth water, and with extreme ease, from two colliers at a time. If one might venture the suggestion, it would be that the Admiralty might do worse than to verify this statement, and consider the possibilities of this port in conjunction with Simon's Bay.

"Durban, however, is a port that, besides possessing a fairly efficient supply of steam coal, offers exceptional facilities for transshipping and doing the ordinary work of steamers with the minimum of inconvenience.

"There is now at that port a large output of Colonial coal at a very cheap rate per ton, and every facility is given by the Natal Government for the bunkering of steamers. The supply, moreover, is an always dependable quantity, and as regards quality it is about equal to ordinary North Country coal. The resources of that port at the present time probably would run to 70,000 tons per month, and in an increasing quantity; and I find that for the end of February, 1904, the average depth of high water on the bar was 31 feet.

"The coaling supplies procurable at East London and Port Elizabeth are of a very meagre nature, and not to be considered as a source of supply.

"It would be possible perhaps to supply coal at the rate of 1,000 tons daily at Sierra Leone; that, however, would be but a mere drop.

"Such being the case, it is quite possible—I do not say it is probable, but *it is possible*—that if at the end of this war Russia should find herself in a very dangerous position, as she may very well do, and should appeal to France *ad misericordiam* for aid, it is quite possible that such a wave of sentiment may sweep over France as will force its Government, on pain of overthrow, to go to the aid of its old ally. If France should act in that manner, it is also quite possible that Germany may join in also and strike a blow at Britain. We shall then have to face that combination which has so very often been talked about; of three Naval Powers against us. I do not say, of course, that this is what *will* happen, but I say it is what *may* happen, and, what is more, it may happen in the course of the next year or 18 months. I therefore contend that, as reasonable, practical men, we ought to assume that it *will* happen, and prepare for it. In view of that possibility, what is to happen to our Mediterranean trade? I will not enlarge upon the magnitude of that trade, or of its vital importance to this country, because it is well understood and known by everybody. But the first thing that strikes one in considering this matter is that there are two totally divergent views on it. There is the one school, who maintain that our Mediterranean trade is of such tremendous importance that it must be defended at all hazards, even if we are engaged in war with France. There is another school who maintain that if we are engaged in a naval war with France, it is not, and will not, and cannot, be possible to properly protect our Mediterranean trade. I wish to quote the authority of the Naval Prize Essay for 1904 to back up that argument, because that view is very strongly taken in that essay. It says:—'The Mediterranean is admirably suited to torpedo-boat warfare, and it is France's evident intention to render the Toulon-Corsica-Agiers-Bizerta area as dangerous as possible to hostile fleets; a sure index of this is the large number of torpedo-boats and submarines building at present.' Then from that he goes on to deduce that:—'The Anti-Toulon Fleet would lie W. of Gibraltar, with a Cruiser Squadron of 2 armoured cruisers, 1 first-class protected, 2 second-class, and 2 third-class cruisers, with 6 destroyers watching Toulon'; and he further goes on to say that:—'The Toulon Fleet may remain at its base for some time while the cruisers harass trade and a torpedo-boat warfare is directed against the British Battle

Fleets.' He further goes on:— 'As regards trade, *any idea of keeping the Mediterranean route open at the commencement of a Franco-Russian war should be abandoned, and arrangements made for deflecting all trade round the Cape.*' If that view is to be taken as correct, or even as an approximately correct expression of naval opinion, then I say the situation is most serious and grave; for if it is possible that we may find ourselves at war with France, Russia, and Germany in the course of the next year or 18 months, then it appears probable that we shall find ourselves compelled to deflect our trade round the Cape, whether we like it or not. The lecturer has said that he considers it, as far as he can see, almost hopeless to attempt to do so; but we should have no option, apparently. Looking at the map which he has exhibited, how on earth is our Mediterranean trade to pass through? How on earth are our slow 8 or 10 knot tramps, in which the greater part of our trade is carried, to pass slowly along in front of Bizerta, Tunis, Oran, Algiers, etc., etc.?"

The *fifth* article will be explained by the following extract:

"DER WELTKRIEG.*

"By AUGUST NIEMANN.—(Vobach & Co., Berlin, Leipzig).

"Though the author's idea of strategy and tactics are somewhat crude, this book is interesting as an illustration of views which appear to be entertained in some quarters on the Continent.

"In his Preface the author recalls a conversation with a British Officer whom he met in India, in which the latter said that when he first served there as a subaltern the Russians were 1,500 miles from the frontier, when he returned as a captain 15 years later they were 500 miles away, and now they are actually at the passes leading to India.

"He looks into the future and sees a war waged by the three allied powers—Germany, France and Russia—against their common enemy, England, with a new partition of the world as its result.

"The scene opens with a conference of Russian statesmen at the Winter palace in St. Petersburg, during which M. de Witte states that 'It is the never-ending enmity of England which is responsible for the attack by Japan' and that it is necessary to put a stop to England's opposition to Russia's aims and interests. General Kuropatkin, called upon to unfold a plan of campaign says 'There are three important passes leading from Afghanstan into India—the Khaibar, the Bolan, and the Kurram,—and it suffices to say that we would find a way there. Habibullah Khan would join with 60,000 men as soon as we entered

*A translation, by J. H. Freese, under the title "The Coming Conquest of England" has recently been published by Routledge.—ED.

his country; he would indeed, be just as likely to join the British if they were first in the field, but nothing should prevent the Russians from being there soonest. I guarantee that within four weeks of the declaration of war a sufficiently strong army could be concentrated in the neighborhood of Herat; this first army could, moreover, be followed by an unceasing stream of regiments and batteries; the reserves of the Russian Army are inexhaustible, and if necessary four million men and more than half a million horses could be brought into the field. I doubt, however, if the English would meet us in Afghanistan, and I consider they would be foolish to do so; for if they were defeated the Afghans would destroy them without mercy, whereas to us there would always be open a way of retreat through Turkestan. If the English army were defeated, India would be lost to Great Britain; her power would be attacked on all sides by the Native Princes, who have been so cruelly robbed of their independence, while we would be looked upon as deliverers. The Anglo-Indian army is much stronger on paper than in reality. It numbers nominally 200,000 men; but only one-third is British, and it consists of four Army Corps scattered over the whole of India. The Field Army would have to be newly organized, and at most it could not number more than 60,000 men; for owing to the disloyalty of the people, the country could not be denuded of troops. My opinion is that the war should be carried into India, and that victory would rest with the Russians."

The *sixth* article is a commentary on the anti-English foreign policy of Germany, and discusses the probable action of Germany in the event of war, as well as other related matters:

"Many Germans have pilot's certificates for our harbors. In time of war these men's places would be on board the warships, as they were when the Gefion and Deutschland, conveying Prince Henry to China, steamed into Portsmouth in a fog. This occasioned a good deal of comment at the time on the good seamanship of the Germans. The talk *ought* to have been as to whether foreigners should be granted pilot's certificates for our harbors which could be made use of in time of war, but this point was never raised. It would be interesting to know how many British sailors have pilot's certificates for German harbors. The German officers come to England on leave, stay in our country coast towns, collect intelligence about communications, harbors, supplies, etc., yet no one ever makes the least attempt to stop them. Would any one in our Service be allowed to collect the same in the Fatherland? Early in 1903 some young German officers, disguised as laborers, were found working on the new harbor at Gibraltar. Now, supposing some of ours had been discovered, for example,

working on the forts which are being built round Metz they would probably have been imprisoned as spies. Were our Teuton friends treated in this way? Not a bit."

The *seventh* article is of more than usual interest as to field artillery tactics:

"The special correspondent of the *Times* with General Kuroki's army has contributed to a recent impression of the leading journal a review of the artillery lessons of the fighting in Manchuria, which is extremely informing and useful, coming as it does from a trained observer of the strenuous tests to which both organization and *materiél* have been subjected during the campaign of 1904. The Japanese gunners have achieved many notable successes, and, in illustration of the splendid services rendered by the Artillery to the arms of Japan, the following instances are quoted. 'At the Ya-lu the fire of the howitzers pulverized the Russian artillery and rendered the task of the infantry perfectly simple. At Mo-tien-ling six Japanese guns were mainly responsible for the repulse of the attack on the pass on 17th July, an attack that, had it been supported by artillery, might have resulted differently. At Towan the 13 Japanese batteries overwhelmed the four opposed to them and cleared the way of the infantry. On the right bank of the Tang-ho the Russians made a most determined stand against the column wedging its way into their line of defence. That defence might have been successful were it not that two mountain guns intervened when the issue was in the balance, and turned the Russians out of the trenches they were defending so obstinately.'

"These are instances of course from the operations more particularly of General Kuroki's army, but many other examples of the decisive effect of the artillery fire could be brought forward from the operations of the other armies, and conspicuously in the case of the storming of the Russian position at Nanshan in the opening stage of the investment of Port Arthur. The practically unvarying success of Japan might induce the conclusion that, gun for gun, the Japanese ordnance must be superior to the Russian, but it appears that the facts are just the reverse. The Russian field-gun is a heavier piece than the Japanese, throwing a projectile 25 per cent. heavier 1,500 yards further, and not only so, but though not a quick-firer according to modern ideas, it is capable of being fired much more quickly than the Japanese weapon, and the correspondent refers to instances, which recall the experiences of France in the campaign of 1870, where he has seen Japanese gunners sheltering from a storm of shrapnel poured upon them by guns which their own artillery was incapable of reaching.

"The successes of Japan have been achieved by superior tactical

concentration and handling, and, above all, by superior gunnery. Had the superior ordnance been in the hands of Japan the result must have been a more overwhelming disaster than has yet overtaken the Russian arms. The Japanese proved themselves better range-finders, better shots, more cunning in concealment, more astute in choice of position, and more indefatigable in overcoming engineering difficulties. In the matter of concealment the nature of the country through which the operations have been conducted has been such as to give special opportunities for masking the position of guns, and the nature of the mounting of the Japanese field gun, in which the gun is carried very low, has been probably also a factor. It will come, however, to many as a surprise to learn, that in the matter of actual guns, Japan was quite outclassed. However that may be, the great importance of the artillery preparation and support, both in attack and defence, has been once more overwhelmingly demonstrated and special interest attaches therefore to the reports from Tokio that great efforts are being made to place improved guns in the field for the spring campaign. What should be the features of the modern field gun? The correspondent of the *Times* entertains no doubt. 'The present war teems with lessons, lessons that have been repeated time after time until they have stereotyped themselves upon the mind. The burden of these lessons is that the biggest possible guns are the best, that the guns that throw the biggest projectile to the furthest distance at the quickest rate are the only guns for an army that is destined to conquer on the field of battle. There is no limit to the ideal size of gun, except that imposed by the difficulties of transportation. The most effective gun, it has been amply demonstrated in Manchuria, is the biggest possible gun compatible with the field artillery degree of mobility.' That mobility, to put it shortly, can be the same mobility as the infantry which it is designed to accompany."

The *eighth* article is a valuable discussion on the tactics of cavalry which appears to be very opportune, and to be based on sound sense. At all events it involves the generally accepted views of the best authorities, and may find application in our own country:

"We have often drawn attention to the steady, useful, and excellent work now being done by the cavalry, and a correspondent who has lately had special opportunities of observing it in Ireland assures us again that the utmost keenness prevails, and that the work is contributing greatly to the efficiency of the mounted arm. There can be no doubt that, as a result of the war

in South Africa, there was a tendency in certain quarters to question the high value of cavalry, notwithstanding the fact that in the war it had rendered most conspicuous service. The underestimation of the force dated from before the war, and led to the memorable statement that 'unmounted men' were 'preferred.' Our own opinion is that the day of cavalry is, in a sense, only beginning, and that the future is full of good promise. It has come to be considered, by those who do not fully understand the functions of the mounted arm, that its real business is to charge; but, as a matter of fact, the charge is the exception, and only one of the many duties that fall to the force. Comparatively few were the officers or troopers who had any opportunity of learning scouting and reconnoitering, those other important duties of cavalry, before the war in South Africa, and it is a fact that at the opening of every campaign the need of mounted men is demonstrated. It was so in South Africa, and it is even so now in Manchuria, where the Cossack has once more proved a failure, and where the Japanese are lamentably weak in the mounted branches of their army. The Russians have endeavored to organize companies of mounted infantry as scouts, forming part of each infantry regiment; but, though they have rendered some service, they are now discredited, because, when they have encountered even the defective Japanese cavalry, they have always had to seek safety in flight. We have no desire to discredit the work of the mounted infantry, but we are quite sure that it can never prove a substitute for cavalry. * * * General von Pelet-Narbonne has, therefore, set out to discover why cavalry has succeeded or failed in the successive wars from that time to this, and he has no doubt as to the future of the arm. Personality, individuality, he prizes above everything else in the cavalryman, linking with it the highest training that can be given. Cavalry cannot be improvised. They must be given easy, inconspicuous uniform, and trained to fight on foot, with a good rifle and a bayonet to be used as a side arm. But this can only be done in right measure when it is remembered that their true function is to fight on horseback, and to charge with the *arme blanche*. Speed and fighting organization are also great weapons, and the German general is strongly in favor of cavalry divisions of twenty-four squadrons organized and trained in peace, each division supplied with three quick-firing horse batteries, a machine-gun section, and mounted pioneers, provided with adequate transport and equipped with constructive and destructive means. He would even add a battalion of mounted infan-

try, and some cyclists. The idea is, of course, to secure a thoroughly efficient, independent, swift-moving and hard-hitting force.

"It is well that all cavalry questions should be freely discussed, and we were pleased to notice that at the request of the military authorities, and under the presidency of General Sir William Knox, the Inniskilling Dragoons and officers of other regiments listened to a valuable lecture upon cavalry work by Dr. Miller Maguire, in the Marlborough Barracks, Dublin. The lecturer showed that every nation which ignored cavalry or mounted troops at the beginning of a long war was very glad to avail itself of their service before the war was over. The example of the famous cavalry of Sheridan in the American Civil War was cited, as were the achievements of many other great cavalrymen from the charges of Seydlitz and Murat to the cavalry operations of 1870. The cavalry is the arm *par excellence* in the pursuit of a defeated enemy, but it has the great duties also of scouting and reconnoitering, and screening infantry.

" 'There never is worse economy than saving money at the expense of military efficiency, and horse management should be a branch of national education.' As to the value of cavalry, Dr. Maguire, like ourselves, entertains no doubt whatever, and he enforced his argument by describing what Stonewall Jackson and Ashby did in America, what our cavalry could do in India, and what Skobeleff did and proposed to do in Central Asia."

ARTILLERY AND FORTIFICATION.

1. Motor Artillery.—*Ind. Vol. Rec.*, Dec. 31.
2. Seacoast Gun-Carriage Design.—*Jour. Arty.*, Jan.-Feb.
3. Aiming by Telescopic Sight Compared with Aiming by Open Sight.—*Same.*
4. High Angle Fire.—*Same.*
5. Training Ranges and Long-Range Firing.—*Same.*
6. Gun Arm for Mortar Battery Plotting Board.—*Same.*
7. Field Artillery for the British Army.—*Same.*
8. Schneider-Canet du Bocage Howitzers.—*Same.*
9. Aiming Devices for Field Guns.—*Kriegs. Zeit.*, 1.
10. Artillery Material in Russia.—*Same.*
11. Japanese Powder.—*Same.*
12. The Fortifications of China.—*Same.*
13. Notes on Engineering Work in Northern China.—*Royal Engr. Jour.*, Jan.

Most of these articles are necessarily of a technical nature.

The *first*, however, has some general interest:

"We have seen heavy guns drawn in the field in South Africa by steam traction engines, but it has been left to Portugal, of all countries, to be first in the field with artillery drawn by petrol explosion engines. A German service paper states that, on the proposal of Colonel du Bocage, of the Portuguese Engineer Corps, the Government ordered from Schneider & Co., of Creuzot, a battery of four 5.9 in. howitzers, which are drawn by a traction motor, system Brillie, and form part of the defence of Lisbon. The motor itself weighs nearly 138 cwt.; it can carry a load of 98½ cwt., consisting of the battery's crew, ammunition, water, and fuel, and at the same time drag the four 5.9 in. guns, which together weigh 275½ cwt., up a gradient of one in 12.5. For higher gradients up to one in eight the motor ascends alone and then drags the guns after it by means of a cable worked round a revolving drum. * * * Four ammunition wagons are dragged in addition to the guns, and the length of the whole battery train is only 65 yards. The ammunition carried and dragged by the motor gives 72 rounds per gun. The construction of the 5.9 in. howitzer is similar to that of the French 2.95 in. (75 mm.) field gun of 1897. The barrel recoils. The weight of the shell is 88 lbs., the muzzle velocity is 1,148 ft., and the range is 8,750 yards."

The *second* is a classical article by Captain Edward P. O'Hern, Ordnance Department, which had been read before the International Engineering Congress, St. Louis, Mo., 1904.

The *third* is by Captain Piorkowski, of the German Army, Krupp's representative in this country.

The *fourth* is a most valuable contribution for the coast artillery: it is written by Captain Harris, the present instructor in Ballistics at the Artillery School, Ft. Monroe, Va.

WARSHIPS.

1. The Russian Battleship Tsarevitch.—*Jour. R. U. S. I.*, Feb.
2. Coaling of Ships of War at Sea and in Harbor.—*Same.*
3. Injuries to the Cesarevitch.—*Jour. Arty.*, Jan.-Feb.
4. Armament of Cruisers.—*Same.*
5. H. M. S. Dominion.—*Same.*
6. Warship Construction in Russia.—*Kreigstech. Zeit.*, 1.
7. Conning Towers on Battleships.—*Mar. Rund.*, Feb.
8. Changes in the World's Navies.—*Same; Jour. R. U. S. I.*, Jan., Feb.

TRANSPORTATION.

1. The Choice of a Small Motor Car.—*Royal Engr. Jour.*, Jan.
2. Road Locomotive for electrically-moved Targets for Field Artillery.—*Kreigs. Zeit.*, 1.

MEANS OF COMMUNICATION.

1. The Military Applications of the Photometer.—*Kreigs. Zeit.*, 1.
2. Wireless Telegraphy in Russia.—*Same.*
3. Lines of Information.—*Jour. M. S. I.*, March-April.

The *first* of these describes the latest apparatus of the Schuckert works for wireless *telephony*, utilizing the principle of the photometer.

The sending station has a telephone transmitter (or microphone) in circuit with the primary wire of a transformer (induction coil) and a small battery; the secondary of the transformer being in the circuit of the arc light current of a search-light.

The receiving station has a selenium cell (a series of plates of selennum of special form) in the focus of a parabolic receiving mirror. The selenium cell is in circuit with the telephone receiver and a strong battery.

In speaking into the transmitter varying currents are produced, which would be *alternating*, but which are made *direct* by the transformer. These affect the main arc-light current so as to increase or decrease it, thus increasing or decreasing the intensity of the light. This effect is carried over to the receiving parabolic mirror and acts there on the selenium, increasing or decreasing the resistance of the latter, and thus producing variations in the battery current through it and the telephone receiver, and accurately reproducing the original words spoken into the telephone transmitter.

It has been used effectively for ten miles, and has the advantage over wireless *telegraphy* in that it is *secret*. Only a receiver accurately in the focus of the sending search-light can take the message. The variations in light intensity of the latter are not noticeable by the eye.

The *third* is an excellent article by General Greely, Chief Signal Officer, U. S. Army.

MILITARY GEOGRAPHY.

1. Naval Coaling Ports and their Garrisons.—*Jour. R. U. S. I.*, Feb.
2. The Value of Korea to Japan.—*Mar. Rund.*, Feb.
3. German Harbors.—*Same.*
4. German Protectorates in Africa.—*Same.*

SMALL ARMS AND EQUIPMENTS.

1. The New British Short Rifle.—*A. and N. Gaz.*, Feb. 11, 18; *Ind. Vol. Rec.*, Jan. 31.

2. The Lance as a Cavalry Weapon.—*Jour R. U. S. I.*, Feb.; *Ind. Vol. Rec.*, Dec. 31.

3. The Recoil of Small Arms.—*Royal Engr. Jour.*, Jan.

4. The New U. S. Army Rifle.—*A. and N. Jour.*, Mar. 11.

5. The Caliber of the Revolver.—*Jour M. S. I.*, March-April.

6. The Present Tendencies in the Development of the Infantry Rifle.—*Kriegs. Zeit.*, 1.

7. Equipment for Visual Signaling in Dull Weather.—*Royal Engr. Jour.*, Jan.

The *first* of these contain some interesting notes on the new British infantry arm:

"Even had its accurracy in the first few rounds been materially behind that of the old one when fired from a rest or under Bisley conditions, we should still have welcomed its adoption on the score of increased handiness, for, after all, what does extreme accuracy in the weapon count for under battlefield conditions? Within a few weeks —even within days—the same troops with the same weapons and against the same objects will vary in their shooting from 1 hit in 200 to 1 in 2,000, and even worse, and generally speaking it will be found that the worst-armed troops have often made the best practice. Thus the French in 1859 had old smooth-bore muskets against the Austrian rifles. The Prussian needle gun was ballastically the most inferior rifle ever placed in the hands of any army as a whole, and was opposed to one of the best of the day, but the inferior weapon did not prevent its users from winning the campaign without experiencing a single serious reverse.

"Nowadays the rifles of all Powers are so evenly matched at the beginning that it is a mere matter of luck as to which, at the moment of any given encounter, possesses the best shooting weapon. Thus one regiment whose rifles have already fired three or four thousand rounds may meet a similar unit with arms fresh from the magazines, and down the range the latter would be, in the hands of skilled marksmen, at least 10 per cent. the better weapons. But, does any one who has studied the records of past experience believe that even such a disparity would outweigh all the other factors of discipline, mobility, and the skill of the respective commanders?

"It is these three latter factors which really decide, and act and react on one another in the following manner. Not even the skill of

a Napoleon could achieve anything with troops not drilled to obedience and trained to stand up to punishment. Given these, and superior mobility, and then his skill will be manifested by the manner in which he maneuvers to secure favorable targets for his men, and when the men find that their leader always finds them targets they can hit, their confidence in him increases, and they will do and dare more to execute his designs. * * *

"The following table gives the figure of merit of the short rifles at various ranges, as compared with the figure of merit of our long rifle and the service rifles of France, Germany and Italy at the same ranges:

	Figure of Merit.			
Country.	200 yards.	500 yards.	1,000 yards.	1,500 yards.
France	.33	.58	1.29	3.42
Germany	.35	.77	1.52	4.02
Italy	.27	.73	2.04	3.04
Great Britain				
(*a*) Long rifle	.27	.62	1.72	4.43
(*b*) Short rifle	.21	.71	1.21	2.99

"The publication of the above table has led to an outcry against the adoption of the short rifle, as indignant correspondents in the Home Press maintain that the figure of merit conclusively proves that as regards this test the new rifle is badly beaten, not only by our present long rifle, but by those of other powers as well, and threats are being held out that awkward questions on the matter will be asked when Parliament assembles. It is really the fault of the authorities that this storm in a teacup has arisen, by their casually issuing a statement, ostensibly for the benefit of the general public, without a word of explanation as to the meaning of 'figure of merit.' * * * As a matter of fact, tests prove that, with the exception of the 500 yards range, the short rifle beat all competitors to 1,500 yards inclusive, though after that range the shortness of the barrel should be a handicap when opposed to a longer barrel. For all practical purposes, therefore, the new weapon fulfils all requirements for the present. Still, this should not be considered as an excuse to rest from further experiments in the direction of improvements, as this little national trait of ours has landed us in the predicament of our Artillery being armed with guns inferior to those possessed by even third-rate powers."

The *second* article, by Lieutenant-Colonel C. B. Mayne, R. E., is so important that we quote somewhat at length:

"The uses of cavalry in the field may be classified as follows:—

"1. Scouting and reconnaissances.
"2. Skirmishing on foot or when mounted.
"3. The charge in battle.
"4. The conduct (or warding off) of pursuits.

"The lance is avowedly a weapon for the charge, and so the question of its usefulness or desirability can only apply to the two last-named uses of cavalry. The lance is also admittedly of little use in a *mêlée*, and a long list of writers can be given who, in consequence of this, have advocated either the lance for the front rank only and swords for the supporting rear ranks, or that 'lancer' regiments should be closely supported by 'sword' regiments. The lance has only been of use in skirmishing when used by races (such as the various Cossack tribes and the kindred Poles) accustomed from childhood to its use and to riding, and whose horses had also been specially trained to the weapon and its use. Moreover, these races were opposed to fire weapons which were practically harmless except at a very few yards' range. But even then, with all these conditions in their favor, these 'lancer' races failed before equally good horsemen and horses who were not afraid to charge home at speed, sword in hand. For example, the Line Cossacks had to give up their lances and take to the sword in order to compete with the Circassians, who invariably defeated them until the change was made. The Cossack and Polish lancers, from whom the Western nations in Europe have borrowed the lance as a cavalry weapon, were essentially irregular light corps, whose specialty was scouting, skirmishing, and plundering, and who only attacked small detached parties of the enemy in days when exposure at short ranges did not mean pretty certain death. However, it has been fully recognized that in the face of modern rifles and smokeless ammunition the lance nowadays is a serious encumbrance during scouting and skirmishing work. * * *

"From all the long review that history gives us of the employment of cavalry in war, I would ask this question: Why, if the lance has the great value that its advocates claim for it, has not this value stood out as a marked factor in war, clear and indisputable? As a matter of fact, all the grand traditions of cavalry, including our own, have been made by swordsmen, and not by lancers. It is the training and leadership of both men and horses that have produced the great tactical and strategical results of history, and not the weapon carried by the men.

"Seidlitz, Frederic's great cavalry leader, was very strong on the principle that a cavalryman should put his horse on top of his enemy. He wrote:—'In the charge it is a matter of indifference what weapon the soldier carries. The chief thing is that he should be well mounted, and that he should bear in mind the unshakable resolution to ride the enemy down with his horse's breast. In the *mêlée* the sword and mace are the only weapons practicable.' This principle of using the horse as the cavalryman's true weapon is now enforced in our cavalry training, I am glad to see. This use of the horse, combined with speed and with mobility in mass, forms the essence of a victorious charge, and the Russians are very wise in accustoming their horses to ride at speed into dummy figures.

"I have only touched on the uses of cavalry as affected by their armament. Consequently many vital questions affecting its strategical and tactical uses and the conditions for obtaining really decisive strategical and tactical results with cavalry have not been dealt with. All that I have endeavored to show is that the true weapon of a cavalryman is his horse, that the historical hand weapons of cavalry are the sword and firearm, and, therefore, that the abolition of the lance, especially under the conditions of modern warfare, is a step in the right direction. The sword is for use in the charge at speed and in closed mobile masses, when suitable occasions arise for a great decision to be made by shock tactics, as they will do in any fight; on the other hand, for the greater part of the other duties of cavalry in war the firearm will be the weapon that will be made use of by the trooper.

"The lance is a weapon that requires a long and continued use before even average skill can be attained with it, and even then it is of little or no use in a *mêlée*. Moreover, it has never prevented determined horsemen from attacking cavalry armed with it, nor is there any historical example where such attacks have been overcome solely because of the weapon in use. In the charge the man and his horse, taken together as a unit, is the cavalry weapon, to be used at speed and in as great a mass as possible, consistent with mobility, so as to create what Cromwell called "a tornado tempest" with which to destroy the enemy's power of resistance. Such impetuous cavalry charges in mass and at speed, when made at the right moment and at the right place, have always produced such astonishing and far-reaching results that cannot ever be reached by the other arms of the Service, and, as I have already said, all the magnificent traditions of cavalry in winning victories have been made with the sword.

"In fact, the hand weapon is altogether a secondary question to

that of the shock use of 'the man and his horse.' Cavalry are not required to make a charge an occasion for a display of skill of arms, but for breaking down the enemy's power of resistance by the force of the shock of the charge. The use of hand weapons is a secondary matter in the charge, though, like all secondary matters in war, should be made as efficient as possible in order to make the primary factors more telling and effective."

MILITARY HYGIENE.

1. Physical Preparedness and the Organized Militia.—*Jour. M. S. I.*, March-April.

MISCELLANEOUS.

1. The Sick Horse in Peace and War.—*Jour. R. U. S. I.*, Jan.
2. A New Infantry Range Finder (illustr.).—*Kriegs. Zeit.*, 1.
3. The Cyclograph (recording the path of a cyclist).—*Same.*
4. The Microphotoscope (the new General Staff map-reading lens).—*Same.*
5. A New Drawing Instrument.—*Same.*
6. A New Gauge.—*Same.*

NEW EXCHANGES.

The Royal Engineers Journal. Chatham, England: Royal Engineers Institute. One Shilling a number.

SERVICE SALAD.

Readers of the "United Service" are cordially invited to contribute to this department items of either fact or fancy, grave or gay, instructive or only entertaining; in short, any literary flotsam and jetsam likely to interest our subscribers.

PEREUNT ET IMPUTANTUR.

(From Blackwood's Magazine.)

Whether or not General Buonaparte actually poisoned his wounded at Acre and Mount Carmel, lest they should fall into the hands of their ruthless enemies, is one of the controversies of history. An equally moot point is his right, or that of any man, thus to anticipate the workings of Providence.

The following tragedy involves the same controversy; while of its truth there are but two vouchers, the grey hairs in the head of the officer concerned, and the memory of Dip Bahadur Gurung, the orderly—but he saw nothing unusual in the incident.

Away up above the Third Defile of the great Irrawaddi in the province of Upper Burma, a small cloud had appeared on the peaceful horizon, at a time when the melting of the snows had so blocked that defile that the Government launches could not ply between the larger military posts and the small detached garrisons up the river. The Freebooter, the Scout, and the Pirate dare not breast the rush of water in the gorges, where the Buccaneer already lay at the bottom from an over-rash attempt to get through the defile last fall with medical stores. So from the month of May, when the waters rose, to late in the autumn after the rains, the troops up-river were quite isolated, and it was a season in which the Government and all reasonable tribes abstained from hostile acts.

It was no wonder, then, that the authorities were much concerned, when news arrived that a pretender to the throne of Burma had crossed the frontier of China, and was making war against the British. A prince of the blood, forsooth, had appeared, with proclamation and peacock banner, with forty Chinese black flags, and a score or so of Burman wolves' heads harbored in the State of Sansi. Now, a prince of the blood was no new thing in Burma, or a princess and maid of honor either, for that matter, since the blood of Thebaw ran in as many channels as that of the Stuarts and the Bourbons, and of titular claimants there was no end; but Burman Perkin Warbecks, on the Upper Defile, with the river swollen and the

rains approaching, called for immediate action, lest a real rebellion should follow. Since an army at that time of year could not be sent to grapple with the pretender, the subaltern in charge of the nearest Military Police post would have to go instead, and if he fail, why then something else must be done; but in those days there was much confidence in the capacities of police subalterns to deal with minor crises.

The following telegram, therefore, arrived one May morning at the Military Police post of Tali from the civil Commissioner of the division:—

"To the Officer Commanding at Tali.

"The Shwedon prince, with Boh Htee, and Boh Wasaw, and twenty Chinese, armed with Remingtons, were at Waimone two days ago, endeavoring to stir up the Shans [stop]. The Wuntho Tsawbwa, with two elephants, is reported coming south to join him [stop]. Try to capture the prince before he gets a following [stop]. You will be reinforced tonight by Lieutenant Reever and thirty men of the Tsenbo Battalion in the launch Pathfinder."

Clear instructions, and simple enough in all conscience, putting the burden of failure on the subaltern, and leaving plenty of bricks to be made without any mention of straw; a perfectly satisfactory arrangement, however, to the officer concerned, who, coming from a smart native regiment to seek retrenchment and a district where the Queen's writ ran but slowly, had developed a craving for responsibility, and a love and much aptitude for the rough-and-tumble soldiering in the Burmese jungles.

To our subaltern, James of the Levy, late of Hearsey's Horse, and better known in Hindostan as "Jimjams," the proximity of the filibustering prince was already known, and his interpreter and a couple of Jharua scouts had been despatched the previous night to get ken of him. Pending their return, the only thing was to take stock of and mobilize the available garrison. Fifty-seven Goorkha and Jharua rifles of the Levy, ten Sikh mounted infantrymen, with a hospital assistant, two signallers of a Madras infantry regiment, and a telegraph babu, comprised the sum-total of the force, to which might be added five pack-mules and a couple of muleteers—not much to engineer a Culloden on, even with the expected reinforcements on the Pathfinder thrown in!

The total force available when the launch had arrived would not be more than seventy rifles, since the post, the usual sapling stockade, with fringe of bamboo pangies* and shallow ditch, had five months' rations stored, and could not well be deserted. Three only of the five mules were fit to be saddled, and these would carry a pair of 80-lb. flour-sacks—two scant half-rations per man—two boxes of reserve rifle ammunition, and the third would just take one waterproof sheet between two men, and a couple of blankets for the white officers—a slight concession to

*Pangies=spikes.

the value not only of the white man because of his color, but to the necessity of nursing the headpiece; a necessity sometimes overlooked in excess of zeal. Every man would have to carry his cloak *en banderole,* and sixty rounds of Snider ammunition, a wound from which meant a real business wound, and not a ten days' imitation, allowing the victim to return to take part in the next fight.

At noon the Pathfinder hove in sight round a bend in the river, chunking hard against the swollen her decks, and her tripod Nordenfelt, the pride of her Mugh *seraing,** glinting in her bows. Full four hundred yards above the Tali landing-ghaut she struggled up-stream, and then swept down on the flood to the steep bank, deftly avoiding two huge snags, and cleverly sidling alongside at the exact spot, much to the admiration of a row of Shan girls, who, squatting above, smoking the inevitable cheroot, were thoroughly enjoying the proceedings. On the tiny bridge stood Reever, and by nature reiver, clad, after the fashion of the Irrawaddi, in short loose breeches of blue Shan silk, and khaki jacket atop, and by him a Pathan native officer. "Hulloa, old man Jimjams!" shouted he; "what's up now?" "You come ashore, young feller," returns James, "and I'll tell you. Big thing this. Biggest thing in Upper Burma." And the two leaders then held a conference full of sound ideas lightened with the chaff that is inseparable from the British subaltern, even in the gravest crises. Soon after the conference the two scouts came back with fairly ample news; twenty miles and more had they been to the Shan Talok village of Sadon Pa, under the peak of Kumpi Pum, where they had found to much to do, for the Shwedon prince had passed through the night previous, and had carried off six maids of the village. The Thugyi (headman) had objected, and now hung crucified for his pains; and the mother of one of the girls who had dared protest had been hung up by the hair to a tree, sprinkled with kerosene, and then set alight, amid the jeers of the pretender's army. The poor Shan Taloks, the most peaceful and industrious of our new subjects, had asked pitifully if the great English queen allowed such doings, and the interpreter had taken on himself in the *Sahib's* name to promise full vengeance. Further and most vital information was to this effect, that the prince and his followers, who numbered about two hundred had moved to another Shan Talok village, some seven miles on, named Namli, and were to be waiting there till the Yawlin tribes had joined them, and that a dozen maids of that village had been requisitioned by them, which no man dared resist, therefore they prayed the Thakins to come quickly to their rescue.

Now Namli village lay a good three-and-twenty English miles to the southeast of Tali, through the steep gorge of the Karee Chaung and over the ridge of the sister Pums, as hard a track as man could wish to climb;

*Seraing=skipper.

but still within reach before the next morning to troops as hard and fit as the men of the Levy, provided they lost no time in getting away.

James was a man of action, and Reever was eager as a terrier, so in an hour's time the little force was paraded outside the stockade—fifty men of the Levy, twenty Sikhs, of Reever's lot, three mules, and the doctor babu, who was to ride the mules by turns atop of their actual loads, every man with his cloak and as much rice and chapaties as his haversack would hold.

As they were parading, a telegram arrived from the Commissioner, to say "the General hopes you will be very careful; no reinforcements can be sent you for some weeks." "Silly old bird," remarks the irrepressible Reever; "nice of him to cheer us up." The more tactful James, however, despatched a reassuring message to say that he would observe the greatest caution, remarking that it was high time the enemy cut the wires. Not the first commander by any means to utter such a wish, nor the first to have ready agents to "rid me of this turbulent—telegraph."

At the last moment, on the suggestion of a native officer, the route is changed, and the men are packed into three large talaungs with Shan rowers, by which some six miles of the road might be accomplished without fatigue to the footmen, by rowing three miles down-stream and four up the Karee Chaung, the ten mounted men and the mules going by road to meet them. By this means, too, the villagers of Tali would not know the route taken till the column was some miles on the road.

As they were starting another telegram arrived, this time from an officer commanding a police battalion up-river, and calculated entirely to counteract the effect of the General's message. And it ran thus: "Good old Jimjams, ride straight at him; am coming after you as soon as I can raise some men; send Pathfinder up here."

By three in the afternoon the boats were dropping down-stream at a good five miles an hour, the Goorkhas and Sikhs in the best of spirits, the officers in the leading *talaung* busy examining the very meagre maps of the districts and cross-questioning guides. Fortunately, a native officer had been to Namli by that route a couple of years before with a boundry survey, what time the Chinese had overrun the frontier and blown up our boundry pillars. After half an hour's run down-stream, the flotilla swung round a bend by a big reed-grown sandbank into the mouth of the Karee Chaung, and at once commenced to pole up-stream, past piled village and fertile rice-flats, feeding ibis and flighting wild-duck, till some four miles from the Irrawaddi the leading boat stuck on the sand, and they saw the mounted infantry, ten bearded Sikhs, wating for them on the bank. Five minutes sufficed to disembark the expedition, and five more to get it under way, the mounted infantry in advance till dark. Seventeen miles had to be covered, seventeen remarkably stiff miles, too, for the road was already ascending, and nothing but a goat-track at that. James intended to push along for some ten miles till he reached the second crossing of the Karee stream, somewhere about 8 P. M., and there to halt for a few hours till the moon rose, ere he ventured into the tangled paths in the bamboo jungle that fringed the lower slopes of the eastern hills above the stream.

Away troteed the ten Sikh horsemen, to gain two or three hundred yards' start; after them trudged the sturdy stuggy Goorkha footmen, eternally chaffing the solemn long-legged Sikhs of Reever's party, who brought

up the rear in dignified silence, till the white officers bade the chattering Mongolians cease their clavers also. Behind followed the three mules, with the unhappy doctor babu jogging and jolting on the leader.

Through bamboo-thicket and teak-forest the road took them, ever in single file, past cool silver streams and sour acrid marsh, to the chagrin of the huge coulon in their evening feed; up into rocky defiles, where the orchids hung on the trees in glorious pendants; through wattle villages, where the villagers yelped delight; and on over the wooded col, till again the path dropped as the sun went down, towards the grey shade and the cobalt mist of the Karee valley, to the flighting teal and the shrill whistling of the bamboo partridge.

Shortly before eight o'clock, as the last streak of day was disappearing in the haze of the valley, the little column reached the Shan village of Heylon, and as it swung into the hamlet it shied visibly at three ominous shapes that stood out clear against the sky.

Three St. Andrew's crosses were silhouetted in the night air, and on them hung three dead Shan Taloks, of whom one was the Thugyi (head) of the village, and another was a wretched old woman, some poor scolding old body who had dared raise a quavering voice against the prince's raiding dacoits. Accustomed as is the native mind to ideas of tyranny and bloodshed, even the Goorkhas cursed to see the sight, and the two English wardens of the frontier swore silently into their beards that the Shwedon prince should pay a fair and true reckoning for his piracy.

In the village, whose inhabitants had fled to the jungles, and small wonder, it was decided to halt in the company of the poor victims till the moon rose; and the sepoys munch their chapaties and rice, and have the last sleep they were likely to get for many a weary hour. The party dozed in a sort of a square, round two isolated houses at the far end of the village, well removed from the three gruesome crosses, and the most defensible point, at which also a Cossack post was established, covering the approach from the east.

At midnight it was proposed to start again and try to cover the seven miles to Namli by 4 a. m.; dawn would not be till five.

At 11 p. m. the moon rose over the jagged tops of the bamboo jungle, covering the hillside opposite, waning, but still strong and powerful; and James, peering round his bivouac, could see the round cap of his sentry sharp against it as it rose, standing out from the shadow of the long log house that concealed him.

Hardly had the moon cleared the tops of the bamboos, when the light swish of a pair of grass-shoes could be heard coming down the rocky path opposite and splashing through the stream. James slipped across to his sentry and roused the two men of the relief; as he did so a Shan, haggard and drawn in the moonlight, dragged himself up the rise from the ford, stretching out before him a bleeding arm from which the hand had been lopped. No need for the levelled bayonet of the sentry, or a spring by the rest of the picquet; the poor wretch's murmur of relief on seeing the British showed clearly enough whence he had come, and while the doctor babu dressed his stump, his tale was unfolded to the two officers. A right valuable tale it was, too, as ever came to a leader seeking intelligence of his adversary, for the Shan was son to the Thugyi of Namli, and had been sent forth the last

evening by a bypath to fetch such aid as he could from any village that dare resist the prince, and if possible warn the British. A raiding party of the intruders had come on him unexpectedly, and deeming him a straggler from the village, had cut off his hand merely in their light-heartedness, as a warning against straying from home. After which he had struggled on to the Karee Chaung, and this was what he knew of the enemy. The main body, now some four hundred strong, for some Yawyins and three Kachin Tsawbwas had joined them, lay in the village of Namli, occupying the houses and doing as they pleased. The prince and several of the Bohs, with their immediate following, lay, however, in the Thugyi's house, which stood apart from the village, some two hundred yards on the hither side, along the narrow spur which jutted out from the main ridge. Further, a picquet, furnished by the Kachins of the Sakong-wa, was posted a bit lower down the spur behind a stockade made by forced labor from the village that afternoon. He himself had been sent by his father in charge of the tally of villagers for the *corvée*.

A moment's reflection showed James that chance had given him an opportunity he had hardly dared hope for; could he but pass the picquet he might secure the prince and the Bohs, and get them away with the mounted infantry before he need deal with the main body or fear a rescue from them. How to surprise the picquet of Kachins was the problem, for the Shan said that the jungle round the spur was too thick to be traversed, while the noise of men passing through it would be bound to attract attention; the Kachins, however, had looted all the village supply of *shumshu*,* and might well be sleeping. He himself was none too weary for revenge, and if he might sleep for half an hour would gladly guide them. The scheme of surprising the picquet was far too promising to be neglected, and the whole lie of the pretender's bivouac was more than propitious, so in half an hour the little party was ready to move off.

The ponies of the mounted infantry had been fed on the young bamboo leaves and a handful of unhusked rice from a hut hard by, and the men had had a good meal, while Reever produces his whisky flash and insists on James taking a pull of the wine of the country to keep the fever out. The general scheme is explained to the native officers, and some suggestions by one of the Goorkhas adopted, and the party tramps off—no advance-guard this time, since touch might be lost—the mounted men in rear, James, the Shan, and four Goorkhas leading, and nothing but the broken shadows in the moonlight to show that a movement was afoot. Seven miles of broken track by night is a weary march, and it was not till close on 4 a. m. that the guide indicated that they were at the bottom of the spur leading up to Namli.

Here the leader halted his party, to close up and generally get ready for the final act—final, at any rate, for some of them—for the Burman if caught in a trap can turn and fight, ay, and sting too, like many another folk the British army wots of, who have no stomach for a stand-up fight unless the odds are more than favorable. But it is always the lot of the junior officers, who keep watch and ward on the marches that follow the sun in its course, to have to lay the odds, and thus to tackle a calculat-

*A fiery beer brewed from rice.

ing foe; for no nation expects more bricks for less straw than shopkeeping England, though, unlike Pharoah of old, she gets little murmuring from her slaves. For a miserable pittance they give work that gold cannot buy, and take many a hazard that prudence and the laws of chance forbid, . . . and win, or fall to the tormentors of the half-penny press.

With some such thoughts as these, then, James of the Levy cast about in his mind how he might win the hazard; the burdens of responsibility, that break so many gallant hearts, heavy on him, and his mind vexed with the many pros and cons that fate sends to weaken determination. It is not many men that can face desperate responsibility unmoved, as good leaders know right well, and keep tneir knowledge to themselves.

Round the leader squatted the Coorkhas as they straggled up, cheery and eager, like terriers round a rabbit-warren, void of imaginations, and blindly confident in their officer of an alien race. Behind them closed the Sikhs and the trusty Reever, eager for blood, uncursed with nerves, and free from any responsibility save that of loyal support, a very swashbuckler of the best class. Who could ask for better men, or not agree with gallant Henry that the fewer men the more honor? So James of the Levy took heart of grace, as he glanced at the squat, eager, almond-eyed faces of Magar and Gurung, and the steadfast impassive visages of the yeomen Jats, and reflected that, big or small, he would chew the chunk, and give his men a run for their money, come weal come woe, like the hearty John Bull he was.

Four a. m. and an hour of precious night remaining, as the raiders swung up the hill spur, and tripped and cursed as they scrambled over the rocks that had forced their way through the skin of the hillside. In the valley below a barking deer was coughing itself awake, and the village cocks had already commenced their reveille. Up the last eight hundred feet of rock and bamboo scrub struggled the British, the sharp, uncanny morning breeze caressing their faces, and compressing their hearts and lungs, four cat-like Goorkhas leading, kookri in hand, and then the resolute Jimjams. Beside the latter, a rope round his waist, lest he play them false, and at the other end of it another of the Mongolian fraternity with ready bayonet, marched, little loath, the unfortunate armless Shan, who had already intimated that the Kachin picquet must be near by. The moon had sunk, and the waving ragged bamboos blotted out the faint indication of approaching dawn, when from the gloom ahead came a shout and a curse from the leading point, who had stumbled over the prone body of a sleeping man..

"*Bahut i dushman raste men sote hain,*" came back the cry (many of the enemy are sleeping in the path), and straightway instinctively the four leading scouts rushed on the sleeping picquet, followed by James and those close behind him, tumbling over each other and throwing themselves on any of the enemy visible, as they struggled up from their beery sleep. A wild rough-and-tumble ensued, kookri and dah, bayonet and matchlock rifle-butt to Tower musket. British hands on Burman throats, scratch and bite and scuffle; stabbing knife and stunning club, while the bamboos waved against the lightening east, and the cocks crowed louder to wake a sluggard force, and all the while the file of British swarmed up the path to watch an almost silent struggle in the grass that fringed the path.

A dozen couples rolled on the ground, and it was too dark to tell friend from foe. James was atop of a powerful Kachin, whom he was trying to strangle, while the other tore at his tightly screwed eyes, till a Goorkha near him stabbed his man, and then did the same for his leader; another had clean hacked the head from his adversary, and was wiping the blade on his victim's shirt, for a Goorkha loves his weapon; three or four more had hammered their men to silence, and were tying them up, and a few still struggled together.

In the middle of the hurley-burley a huge fat Kachin, the Boh of the party, had wrenched himself free from two men who had seized him, and in a wild frenzy was whirling himself round and round, a long keen Chinese sword in his hand, and already had severely wounded a couple of Goorkhas, while in the grey dusk it was hard to get near him. At this moment Reever and his Sikhs came up with bayonets fixed. "A damned dangerous fellow!" quoth he, and promptly three long-armed Singhs drove their bayonets into his ample paunch, which practically finished that picquet.

Fortunately not a shot had been fired, and the struggle in the dark had been too sudden and sharp to allow of much shouting, so that as the British straightened themselves out and secured the prisoners, James hoped he might still secure the prince, whom the guide declared was in a house a hundred yards or so further along the spur. James, with twenty or thirty men, hurried on, bidding Reever follow with the remainder, and in five minutes more had surrounded the huge bamboo hut, hung with horns and skulls, as becomes a headman's residence. Up the ladder and into the front room burst the raiders, and found it, as was expected, full of sleeping forms. Half were secured before they could free themselves from their blankets, several jumped from the back door into the arms of the British below, and four or five showed fight in a corner, like rats in a hole. The Goorkhas and Sikhs had now seen blood, and recked little of desperate men, who were soon overpowered and bayoneted; not however before, unfortunately, one of them had discharged a horse-pistol in a havildar's face, and another emptied a Belgian revolver into our ranks, so that three of our men were down, and the alarm given once and for all. In the village, a hundred yards away, the angry hum of men could be heard, and already stray shots were dropping by the headman's house.

"Take the prisoners away at once with the mounted infantry, Reever, old man," shouts James, "while I hold the end of the village; make straight for home, and never mind me." Then, to the Pathan native officer, "Get the wounded away at once; leave the dead where they lie; use the mules, and take ten of the Sikhs with you." He then hurried to seize, if possible, the nearest house to that in which the capture had been made, whence to cover the withdrawal with the prizes. He could not hope to tackle the whole gathering without risking unduly the safety of the prisoners, and he could not bring himself to slaughter the latter so long as there was any hope of getting them away as prisoners. Therefore it was that he and some forty men found themselves holding the two end houses of the village and firing down the street, for it was built along the crest of a narrow spur, in the endeavor to keep back the angry crowd that surged up from out the huts and from their bivouacs on the hillside.

Away behind, Reever was bustling off his prisoners—seven notables, and the captured Kachins of the picquet as well—and of these five were perched on captured ponies, their legs tied beneath them, and the remainedr aided down the hill on foot by the moral suasion of insistent bayonet points.

Five dead rebels lay in the house, and as these might well be wolves'-heads and men of note, for whose capture or certified destruction a Government reward had probably been proclaimed, it was only fair to the authorities, and the troops concerned in the capture, that there should be no doubt about the matter. Accordingly an expert Goorkha whipped off their heads, which were stowed in a sack for identification by the nearest civil officer—a lamentable act, but one absolutely necessary where the peace and welfare of the borderside depends on the removal, beyond dispute, of the outlaws who "shoot at the strong and slash at the weak," out of pure spite for the ruling power.

When a whole corpse cannot be presented for identification by the crowner, it is good enough on the Eastern Marches to produce the head, so that, reassured at the sightless grin, the merchant, the shepherd, and the farmer may once more resume their work in peace and security; and who shall criticise the local wardens for their action? What was good enough for the gallant misguided English gentlemen who joined the Young Pretender, and whose skulls whitened for many a year on the gates of London, scarce a century and a half ago, was good enough for the pretender's following who tortured and robbed for personal gain on the shores of the Irrawaddi.

While Reever, then, was securing prisoners and scalps, and the Pathan native officer was hiding the British dead and lifting the wounded away down the hill, James was being involved in the most desperate of rear guard imbroglios, from which the prospects of easy withdrawal grew momentarily dimmer. And all the while the east grew brighter, and the stars faded, and the cool wind played on the orchid blossoms that drooped from the trees, as if Bohs and pretenders, dacoits and soldiers, with their evil accessories of rifle and dah, headless corpse and crucified villager, had never trespassed in so fair a garden. The sun shines happily on God's earth, and the flowers bloom to the raiding insect, regardless of man's evil, yesterday, to-day, and for ever, as it shone on Saxon and Norman by the hoar apple tree on the bare ridge of Sussex Senlac in bright English September; on the piled heaps of red and blue in the vineyards on the Two Arapeiles; or on the horror in the plaisaunce of Hougomont in the haze of a midsummer day—and as it must shine on many a stricken field yet in the world's history.

For half an hour the rebels had contented themselves with firing at the rearguard from the cover of the hillsides, at some two hundred yards' range, and with beating gongs to encourage each other; but now realizing that the party they had to deal with was but a handful, they were closing in and moving round the lower slopes of the spur. A lighted arrow had set one of the huts on fire, and forty or fifty men with dahs were endeavoring to close with some Sikhs on James's right; a couple of men were lying dead, half a dozen had been wounded, though none seriously, and a havildar had returned to report that the prisoners and the wounded were now well on their way down the hill. Now was the moment to retire, and under

cover of a rush on the enemy, who were trying to get to close quarters, the party scurried back to the headman's house, till they were joined by the handful that had made the counter-attack. After them poured the exultant enemy, slashing at the two bodies that had been abandoned, and snapping muskets and matchlocks that fired hammered iron slugs, and now and again a whizzing Remington bullet.

A further retreat was ordered to the brow of the ridge, where the picquet had been surprised a short hour before; and here James decided to hang on for a half-hour more, to give Reever plenty of law, and then to make his way clear away as best he could. In this further withdrawal another man presumed dead had had to be abandoned, and to his horror he saw that a man, evidently wounded as the dart back had commenced, had been left behind, and was being hauled away by four Chinamen, out of sight into the jungle, with every prospect of death by torture before him; and since the good of the greater number must ever in war be weighed against the safety of the individual, an attempt at rescue was evidently out of the question, as James had to acknowledge to himself. Now this is a point which chivalrous men are apt to forget in war, and only when a costly rescue is a necessity, for the maintenance of *morale*, should it be attempted. Medical officers, who so gallantly expose themselves to dress wounded under fire, should realize the grave folly they are committing in jeopardizing the welfare of the members they minister to, by risking their lives for the benefit of the one.

So, with deep burning rage in his heart and a red-hot carbine in his hand, James and his remnant once more settled down in the bamboo grass, cuddling their war-worn Sniders, and muttering to their sharpened kookris and long triangular bayonets, ready enough for the appeal to steel when the diminishing cartridge store finally ran out, as it was bound to do ere long; and saw that the yelling, furious crowd, however so much they shirked cold metal at short quarters, were steadily working round his flanks, and that his next move back would mean running the gauntlet through an alleyway of assorted firearms. Fifteen minutes of his allotted endurance had passed, and he ordered back down the hillside half his men, who carried two badly wounded men with them, and with whom were all of the slightly wounded. They were to pull up some four hundred yards on, and wait for him to withdraw to them. Down the path they scrambled reluctantly, for their blood now recked of little, and surged with the lust of battle; but James knew well enough that a useless waste of life was no part of a soldier's business, and that La Gloire had been many a man's ruin, so off they had to go—glory to the Sirkar, and victory to the Khalsa, and every other warlike sentiment notwithstanding, howl the enemy never so derisively—while James himself, with Ghurruck Singh, the grey-bearded old Sikh soubahdar, and a round dozen of Singhs and Thappas, kept the path behind them, as Horatius kept the bridge of old. Ghurruck Singh spat and swore deep into his beard, a dead man's Snider in his hand; and the Sikhs stood up and fought regardles of exposure, like the stubborn, slow-witted yeomen they are, quiet in attack and dogged in defence, fighting with that majesty that Napier ascribes to the British soldier of the old line; while among their legs in the grass and between the rocks the Goorkhas crouched invisi-

ble, and fired away steadily into the jungle, though little enough of their enemy could they see. Thus slowly James drew his party off, snarling and biting, by knots and clusters, pushing his wounded on before him, and all the while the enemy buzzed round, rarely visible, constantly firing, and ever and anon rushing in to club some unfortunate who had fallen behind unseen; till at last, through much weariness, the lust for fight in the men's hearts gave place to the lust of life, as must ever happen with the best of human soldiers, and the rear party dwindled, through men slinging off to join those in front, till but six remained. With them, unfortunately, were two badly wounded men—gallant old Ghurruck Singh, who weighed fourteen stone, and a Goorkha—and an attempt to carry them a few yards had shown that, unless they were abandoned, the whole party must be cut up. Already the enemy were closing round and mustering courage for a rush in, and James had to face the alternative of leaving them to a horrible fate or sacrifice the entire party. Dip Bahadur Gurung, his orderly, spoke softly to him, and James nodded his acquiescence.

A sharp order sent five of the survivors doubling back through the tufts of tall flowery pampas grass that covered the banks of a stream they were approaching, with orders to cross and wait on the opposite bank, so that James and Dip Bahadur, his orderly, stood alone facing the enemy beside the two sore wounded men. The old Sikh groaned, tried to rise, and fell back heavily; a partridge piped in the jungle hard by, and two Kachins peered round a fallen teak-tree and fired at the group. James looked at the orderly and nodded, placed his revolver to the native officer's head, fired, and Dip Bahadur did the same with his Snider to the wounded Goorkha. . . . The two then by one common impulse leapt towards the crouching Kachins by the tree-trunk, and shot them both ere they recovered from their surprise; and then plunged into the mass of pampas grass in the wake of the rest of the men, Dip Bahadur unconcerned enough, but James with a wild set look that he was not to lose for many a day, and which will return to him whenever his memory stirs, till he too goes to join brave old Ghurruck Singh with those who die for duty's sake.

Further it is not necessary to follow the weary homeward way, save to say that, by the village of the crucifixion, where the expedition had halted on the Karee Chaung the night before, Reever and his party were waiting for the rearguard, which was gradually joining him in small groups, as they struggled up with empty pouches and limping wounded, till at last James and Dip Bahadur turned up too, and reported that the pursuit had gradually died away after the last stream had been crossed. Here a halt was made for a couple of hours, and the roll called, with a resulting deficit of thirteen on the full tally; and against this, seven notable prisoners, including the reviving prince who had thought to rival the Sirkar, five common Kachin villagers of the picquet, and a possible gold mine in the sack of unindentified heads. At which result Reever was proportionately elated, and much concerned at James's tactiturnity, an attitude which to this day he cannot account for.

Late that evening, when the sun had died away below the jade-mines' hills, the British cavalcade, weary to dropping, and quietly exultant, filed

into the parade-ground outside the Tali post, and there they found the Pathfinder with two *loungs* in tow, and men of the 'Nsentaru Battalion disembarking, to the number of two strong companies. A telegram was also waiting from the Commissioner to say, "You are not to start till Captain Crowhurst arrives from 'Nsentaru, to take command with two hundred more men—acknowledge," and Crowhurst, keenly disappointed at being too late, could only say "Good old Jimjams!"—a remark very similar to that which arrived, framed in more official language, from the Chief Commissioner and the General at Mandalay the next morning; to be followed in due course with more substantial recognition, for in addition to the capture the whole gathering was found to have dispersed when the larger force moved out.

And now James, late Jimjams of Hearsey's Horse, and some time James of the Levy, is Major James, D.S.O., and second in command of that same incomparable regiment of Silladar horse, and as fine a soldier as ever wore the dress of the Bengal Cavalry, which is saying a good deal; but though his brother officers like and respect him, they can trace little resemblance between the cheery rowdy Jimjams whom they sent off in their best style to Burma to save money and escape his creditors, and the serious zealot who now lives for his profession alone.

In Major James's bungalow, beside the gun-rack and the tally of polo-sticks, hangs a heavily embroidered peacock banner, "stiff with gold but stiffer with gore," and under it a photograph of a handsome old Sikh sirdar of the old school, on which is written a date, and the old dog-Latin couplet from the sun-dial in the old garden on the Ranworth broads; the epitaph of the hours that pass and the beasts that perish, not unrecorded —". . . *Pereunt et Imputantur.* May 17th, 189 . . ."

G. F. MacMunn.

The death-roll due to wars during the last century, Professor C. Richet, of the faculty of medicine in Paris, sums up in a grand total of 14,000,000. He divides this as follows: Napoleonic wars, 8,000,000; Crimean wars, 300,000; Italian wars, 300,000; American Civil War, 500,000; Franco-German War, 800,000; Russo-Turkish War, 400,000; civil wars in South America, 500,000; various colonial expeditions in India, Mexico, Tonquin, South Africa, etc., 3,000,000.

BOOK NOTICES.

The Royal Engineer Journal. Chatham, England: Royal Engineers' Institute. Price, one shilling per number.

This new magazine, available for purchase by the public, is practically an offshoot of the *Professional Papers of the Corps of Royal Engineers,* well known in this country for its excellent monographs on engineering subjects of all kinds.

The Institute has concluded that the requirements of the present day necessitate some modification in the form of publication, and will therefore hereafter print articles of interest to the army at large, as well as

those of a technical character, but of general interest, in the magazine, while the *Professional Papers* will hereafter be confined to articles of a highly technical nature.

The present number (Vol. I, No. 1) is a very neat pamphlet of fifty-eight pages, with five original articles, all of general interest, two translated articles, notices of magazines and a list of recent publications.

We wish our new contemporary all success, and are pleased to see that the valuable contributions of the Engineer Institute are thus to be made available to a larger circle of interested readers. J. P. W.

REAR-ADMIRAL THOMAS H. STEVENS,

United States Navy.

Was born in Honolulu, Sandwich Islands. Son of the late Rear Admiral Thomas H. Stevens, and grandson of Thomas Holdup Stevens. Appointed to Naval Academy, 1863, by President Lincoln, from among sons of officers; graduated, 1868; 1868-69, Pacific Fleet, steamer Resaca, Mexican and Lower California coasts; Mohican, on scientific expedition to Siberia for observation of total eclipse of sun, August, 1869. Promoted to Ensign, July 22, 1869; Michigan and Colorado, 1869-70. Promoted to Master, 1870; on duty in Pacific Squadron, 1870-73, flagship Ossipee and sloop Cyane; while attached to latter ship, participated in survey of Isthmus of Tehuantepec for construction of Interoceanic Canal; temporarily attached to Jamestown; flagship Pensacola, 1872-73, in South Pacific; May, 1873, commanded a company of "blue jackets" during the temporary occupation of Panama by armed forces from Pensacola and Tuscarora, for protection of American interests in time of a rebellion; latter part of 1873, duty at Navy Yard, Norfolk, Va.; November, 1873, Navigator of torpedo-boat Mayflower at time of Spanish-American complications. Commissioned as Lieutenant, January 23, 1874; flagship Franklin, European Station, 1874-76; Marion, same station, October, 1876, to April, 1877; Executive Officer, receiving-ship Passaic, 1878; Torpedo Station, Newport; 1879-80, flagship Richmond, Asiatic Station; 1881, Fleet Signal Officer, Pacific Station; 1882, duty at Navy Department, (War Records); same year, Miantonomah and Galena; 1884-86, Asiatic Station; Ranger, Pacific Station (Behring Sea), November, 1891, to June, 1893; Yorktown, Behring Sea and Asiatic Station, May, 1894, to July, 1895. Lieutenant-Commander, February 2, 1896; Cincinnati, North Atlantic and European Stations, May, 1896, to August, 1897; Norfolk Navy Yard, September, 1897; Philadelphia, July, 1898. Promoted Commander, March 29, 1899, and to Captain in 1904; Navy Yard, Norfolk, November 2, 1899; commanding Manila, July 16, 1900. As Executive Officer of the flagship Philadelphia, he commanded the Naval battalion and Hawaiian National Guard on the occasion of the substitution of the United States for the Hawaiian flags, a singular coincidence, as he was at the time the only native of Honolulu who was a commissioned officer of the United States Navy.

During the war in the Philippines he commanded the gunboat Manila for eighteen months, only relinquishing his command at the instance of a Medical Board of Survey.

After service at the Mare Island and Puget Sound Navy Yards—Captain of the Yard at the latter—he attended the course at the Naval War College—summer of 1903—and was then ordered as Captain of the Yard at the Pensacola Navy Yard, Warrington, Fla., where he remained on duty until February 11, 1905, when at his own request he was retired with the rank of Rear Admiral.